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A case study of adventure education : an ecological analysis.

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A CASE STUDY OF ADVENTURE EDUCATION: AN ECOLOGICAL ANALYSIS

A Dissertation Presented

by

THADDEUS J. FRANCE III

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DEDICATION

This work is dedicated to Caryn, Tucker, Cole and Hayden. Caryn, your support was the largest part in my completion of this work. I am a better teacher, student, husband and father because of you. To "My Boys", Tucker, Cole and Hayden, thank you for your patience and unconditional love. I know how hard it was to sit quietly, not play too loud and to try and not bother Dad while I was doing my homework. I love the three of you more than I could write in a thousand dissertations. I cherish each day I watch you grow and I am excited for the many adventures we will create together in the coming years: you can now be a bit louder in the house!

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ABSTRACT

A CASE STUDY OF ADVENTURE EDUCATION:

AN ECOLOGICAL ANALYSIS

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Historically, the dominant approach to instruction has been for teachers to break down information and present singular facts and behaviors to receptive students. An instructional environment where the teacher disseminates information portrays the learner as a passive agent in the learning process. Conversely, educational researchers have described a complex ecology when teachers, students and tasks interact to complete academic work (Doyle, 1977, 1983). While much attention has been directed at how teachers and students interact as the learning ecology evolves, less attention has been dedicated to the examination of the interaction between learning tasks or experiences and students (content-embedded accountability) in the evolution of this complex ecology (a program of action). The purpose of this qualitative case study was twofold. First, was to examine the learning ecology created throughout an adventure education unit in the physical education curriculum. Second, was to examine the role of content-embedded accountability in the developing program of action. Participants included Ivana, a 23 year veteran physical education teacher and her physical education class (N=19). Data were

collected throughout an adventure education unit (N=8 classes) using qualitative research techniques (e.g. field notes, formal interviews, informal conversations). Data were inductively coded through a method of constant comparison. Multiple processes of open and axial coding were completed to develop major themes and supporting categories. Overall, the strong program of action (PoA) was co-created by Ivana and her students. Structures within the adventure education model provided a framework that allowed the teacher to align content, instruction and assessment and students to focus on their learning to be civil and self-directed. Ivana was influenced by structures in the adventure education (AE) model to (a) bridge the global school initiative for teaching civility with student learning, (b) select activities based on student engagement with relevant content, (c) implement instructional methods that included students' social participation and (d) align assessment with the content and her instructional methods. A significant feature in this ecology was the role of content-embedded accountability, which helped to shape the PoA. Ivana's role as a facilitator and structures in the adventure model for learning tasks held students accountable for their self-directed engagement with the content espoused in the AE model. The structure of content embedded in learning tasks eventually defined how Ivana facilitated student learning. Instructional models such as AE can assist teachers to define content, align instructional methods and create learning tasks that initiate a system of accountability. Future researchers could benefit from considering the connection between a teacher seen as a "technical virtuoso" and the instructional model from which they operate.

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CHAPTER 1

INTRODUCTION

Historically, the dominant approach to instruction has been for teachers to break down information and present singular facts and behaviors to receptive students. An instructional environment where the teacher disseminates information portrays the learner as a passive agent in the learning process. Conversely, educational researchers have described a complex ecology when teachers, students and tasks interact to complete academic work (Doyle, 1977, 1983). While much attention has been directed at how teachers and students interact as the learning ecology evolves, less attention has been dedicated to the examination of interaction between learning tasks or experiences and students in the evolution of this complex ecology. An ecological focus inclusive of learning tasks would be broader and include teacher, student and task interactions. A broader focus would allow researchers and teachers to better examine the ecology of dynamic instructional approaches such as cooperative learning strategies, project-based learning, and/or adventure education, which all embrace an experiential methodology. At this juncture, then, it is important to recognize the role of the teacher will change in this approach to more completely understand the complexities of learning.

Experiential learning is promoted in learning environments where students are challenged to engage in a learning process of constructing various knowledge forms. Experiential learning is a learning approach that emphasizes engagement with content and reflection as students reorganize and build new knowledge structures (Coleman, 1977). An experiential approach to learning is well aligned with the inherent complexities in the teaching and learning ecology, as well as, how most people will learn when they are "out

of school" (Resnick, 1987). Building on the need to include and support experiential learning as an important learning model, I propose an investigation that examines the ecology of an instructional approach that embraces experiential education. In this introduction I will (a) define experiential education, (b) provide adventure education as an example of an instructional model that embraces experiential learning and (c) apply an ecological perspective in analysis of adventure education as one potential instance of experiential education.

Defining Experiential Education

Defining experiential education is an elusive task. In the educational literature researchers have outlined instructional approaches such as service learning, cooperative learning, adventure education, outdoor education, wilderness education and inquiry-based education as examples of instructional approaches that embrace experiential learning. Though the contexts in which these instructional approaches are utilized vary, there are some similarities in the hypothesized learning process in which students will engage that make these all examples of experiential education.

Instructional approaches that align with experiential education have two similarities. First, students engage in prescribed experiences or activities that provide context for behaviors and consequences. Second, students reflect on those experiences as a critical component in the learning process. A common instructional and/or learning sequence respective to instructional approaches that are described as experiential would be, (a) activity, (b) reflection, (c) generalization, and (d) transfer (Henton, 1996; Kolb, 1985). When students are engaged in this sequence they are in an active process of discovering how context affects immediate actions and learning, as well as, shaping their future

actions. Based on this sequence the positioning and sequence of learning experiences becomes paramount in defining experiential education.

One way to examine experiential education and the role of experience in learning is through the interaction between learning task design (environment) and student (student actions, reflection and past experience). Rumelhart (1981) noted the relationship between experience and reflection as a constructive learning process that is interactive and demands information from both the environment and semantic memory. Rumelhart's (1981) work begins to define experiential learning as an interactive process where students engage content in the form of learning tasks and make sense of present experiences in light of past experiences stored in their memory. Though educational researchers recognize a relationship between experience and reflection little attention has been given to examining instructional environments that support experiential learning. In trying to describe and define experiential learning, observations of students' immediate learning environment and their actions in that environment offer some insight to the assumption that direct experience is important as students shape and/or change behaviors with respect to consequences and past experiences. Examining how individuals learn out of school in an applied environment is another way to scrutinize the role of experience in learning.

A comparison between how individuals engage learning in a traditional school setting and out of school affords another look at the role of experience in learning. Lauren Resnick (1987) presented four factors with respect to a dichotomy between in school learning and experiential learning out of school:

1. individual cognition in schools versus shared cognition outside
2. pure experimentation in schools versus tool manipulation outside
3. symbol manipulation in schools versus contextualized reasoning outside
4. generalized learning in schools versus situation-specific competencies outside (Resnick, 1987)

In presenting these four factors Resnick (1987) recognized how experience, whether in or out of school, places different constraints on learning. A common "out of school" learning situation is often defined by the specificity of a problem encountered by a group. In this instance, learners are directed by the cues present in the problem context, then, they work or learn within the highly contextualized task. Tool selection, needed competencies and reasoning are specific to the constraints inherent in the problem. In comparison "in school" learning is often individualized, controlled, decontextualized and information tends to be presented in a generalized fashion (Resnick, 1987). Though Resnick's (1987) factors delineate between in and out of school learning contexts, her main point is that experience impacts learning and the associated cognitive demands made of the learner. Though all learning demands some level of cognition it is at the confluence of experience and reflection where explicit connections between actions and consequences are realized and experience becomes experiential learning (Dewey, 1938; Joplin, 1981).

In summary, experiential learning can be defined as the explicit use of prescribed experiences that are followed by learners reflecting on connections between their actions and consequences that lead to generalization with the intention of applying new knowledge in similar situations. What becomes important now is to examine how a specific instructional model puts the theoretical underpinnings of experiential learning in practice.

Experiential Education in Adventure Education

Adventure education is one instructional model that espouses and enacts experiential learning. The term adventure education has been used to describe many learning contexts. Priest and Gass (1997) explained that adventure education is better defined by the content associated with interpersonal and intra-personal development. Interpersonal development is the development of skills and processes associated with group work, such as communication, trust, providing feedback, brainstorming and decision-making. Intra-personal development has more to do with individual attributes such as risk taking, self-awareness, and meta-cognitive skills.

Once the underpinnings of experiential learning have been defined and the content of inter and intra personal development identified, one can begin to shape an understanding of adventure education as an instructional model. Adventure education can best be described as those educative experiences where learners engage in experiential learning while focused on group processes and the development of self. The activities associated with this learning usually include wilderness travel or ropes course experiences, although, it is important to continue to identify adventure education by the content orientation and experiential methods, rather than associated activities.

Research on the learning processes and instructional strategies associated with adventure education is limited (Bacarro & Richards, 1998). To date, researchers have focused on positive program outcomes, such as increased self-perceptions, trust, team behaviors generally as a potential means to justify the existence of programs. The approach to justify programs, though important as it may be, has lead to a paucity of research on the associated instructional methods and student engagement in both learning

experiences and reflection in adventure education. The next step in research investigating experiential learning in adventure education is to examine the inherent assumptions made with respect to instructional methods and student learning. Doyle (1983) proposed the ecological perspective as a means to examine how tasks and the sequencing of tasks (instructional methods) influence student cognition and work (learning).

Applying an Ecological Perspective in Adventure Education Research

An ecological perspective is a framework that has been successfully used to investigate teaching and learning in context (Doyle, 1977). In explaining how an ecological perspective could be used to investigate learning, Doyle (1983) detailed how tasks, the most fundamental unit in teaching and learning, can be used to view student engagement in and across lessons. Tasks direct a learner's attentions to (a) products to be achieved, (b) operations to be used and (c) resources available to the students during learning (Doyle, 1983). Tasks, then, are a link to examine how students access and process information respective to environmental cues. The examination of tasks forms an initial glimpse into learning. The inclusion of broader ecological constructs such as content-embedded accountability and a program of action (PoA) that assist in better observing how content is situated in learning contexts (content-embedded accountability) and how tasks evolve as a result of sequencing (PoA). These two constructs, a PoA and content-embedded accountability, move beyond observations of teacher/student interactions and foreground tasks, sequencing of tasks and the highly contextualized nature of learning as critical components in learning.

A PoA is the positioning and sequencing of content and management within a lesson (Doyle, 1983; Hastie & Siedentop, 1999). If tasks are fundamental units in

learning, a PoA is the dominant mode of sequencing tasks within an instructional approach. With respect to adventure education a PoA offers a structure to examine activity, reflection, generalization and transfer as defining characteristics of experiential learning. Within an adventure education lesson students may progress through the espoused sequence of activity, reflection, generalization and transfer, however, without an explicit focus on how students and teachers work within and create this PoA, less is known about student learning processes. The structure of a PoA will allow a researcher to examine how teachers explicitly position and sequence learning tasks and students engage content while they move through these tasks across an adventure education unit and within specific lessons. While a PoA offers an ecological construct to examine sequencing of tasks, content-embedded accountability is a construct to assist in examining how tasks are situated in the broader context of the learners past experiences.

Doyle (1983) explained that examining tasks is one approach to accessing the cognitive demands made of the learner in the process of completing a task. Less evident in the physical education literature utilizing an ecological perspective is Doyle's (1983) belief that student engagement in tasks includes environmental conditions where content is embedded in learning experiences. Content-embedded accountability, then, is a type of accountability that is purposefully created through the physical, social and cognitive demands intrinsic to the task and sequencing of these tasks. In this instance, the teacher still develops accountability in the learning environment, however, this role has shifted from enacting punitive sanctions to designing and sequencing content and management (a PoA) which allow students to engage tasks explicitly designed to challenge them to reflect on their actions and thoughts in a contextualized situation (content-embedded

accountability). The constructs of a PoA and content-embedded accountability are directly related as task design and sequencing could affect student cognitive processes. The two constructs offer a structure to examine learning experiences and reflection throughout adventure education lessons.

Future research efforts would benefit from a focus on an initial description of established ecological constructs such as types of tasks, teacher behaviors, student behaviors and accountability systems. The inclusion of a PoA and content-embedded accountability in future research, however, offers a means to examine learning or, more specifically, relationships among task design, sequencing content and cognitive demands made of the learner. Adventure education is one instructional model where a strong PoA and content-embedded accountability have been initially described (Hastie, 1995). This finding lends credence to the dominant sequence of stages in experiential learning, (a) activity, (b) reflection, (c) generalization and (d) transfer, however, future research on the ecology should foreground the learning orientation of these constructs as Doyle (1983) presented them.

Purpose of the Study

The purpose of this qualitative case study was multifaceted. First, was to examine the learning ecology created throughout an adventure education unit in the physical education curriculum. Second, was to examine the role of content-embedded accountability in the developing PoA.

Research Questions

1. How does the PoA develop in an adventure education unit?
    a. To what extent does an instructional model help to strengthen the PoA?
    b. What factors within the instructional model influence the development of the PoA?
2. What is the role of accountability in the PoA of an adventure education unit?
    a. What are various forms of accountability used throughout the unit?
    b. How does the use of an instructional model influence the role of accountability?

Significance of the Study

In the last 20 years educational researchers have shown an interest in how teaching and learning unfolds in the classroom ecology. Researchers have supported that teachers and students vigorously interact in the co-creation of the learning ecology. More recently, however, researchers have demonstrated an increased interest in the role of content-embedded accountability and a program of action in the creation of the learning ecology.

Content-embedded accountability and a program of action are two ecologically based constructs that are directly related to a student's interaction with tasks. This study was designed to investigate the inclusion of student/task interactions within the learning ecology. The inclusion of student/task interaction is significant for two reasons.

First, there is limited research on adventure education or experiential learning with the primary focus placed on student/task interactions. An explicit focus on student/task interactions directly addresses the role of experience in the experiential

learning process. Examining student engagement in a task (direct experience) will shed light on one area that greatly influences the learning ecology and potentially position the role of content-embedded accountability as a primary form of assessment in the adventure education model.

Second, a program of action has been described as critically important to a healthy learning ecology. The definition of a program of action is, "the positioning and sequencing of content and management within and across lessons." (Hastie & Siedentop, 1999). The inclusion of student/task interactions in examining the PoA however is paramount. To better understand how and why various teacher/student relationships and teacher/task interactions flourish in diverse learning ecologies student/task interactions must be included to complete the picture. Simply, how students are directed, engage and held accountable by intrinsic demands of a task will influence teacher/student relationships and teacher/task interaction.

Finally, research on teaching has evolved to a stage where driving questions focus on broader models of teaching and learning (Metzler, 2005). Though research on instructional models in physical education is in an infancy the ecological perspective offers a frame to examine structures within a model such as adventure education and provide a foundation to continue models-based investigations in physical education.

CHAPTER 2

REVIEW OF LITERATURE

INTRODUCTION

Historically, the dominant approach to instruction has been for teachers to break down information and present singular facts and behaviors to receptive students. An instructional environment where the teacher disseminates information portrays the learner as a passive agent in the learning process. Conversely, educational researchers have described a complex ecology when teachers, students and tasks interact to complete academic work (Doyle, 1977, 1983).

Researchers in physical education have directed much attention at how teachers and students interact in the learning ecology (Hastie & Siedentop, 1999) however less attention has been dedicated to the examination of interaction between learning tasks or experiences and students in the evolution of this complex ecology. An ecological focus inclusive of learning tasks would be broader and include teacher, student and task interactions. A broader focus would allow researchers and teachers to better examine the ecology of dynamic instructional models such as cooperative learning strategies, project-based learning, and/or adventure education, which all embrace an experiential methodology.

Future research efforts on adventure education would benefit from a focus on an initial description of established ecological constructs such as types of tasks, teacher behaviors, student behaviors and accountability systems. The inclusion of newer ecological constructs such as a program of action PoA and content-embedded

accountability offers a means to examine learning or, more specifically, relationships among task design, sequencing content and cognitive demands made of the learner.

This chapter will review and synthesize literature in the areas of teaching and learning in adventure education and physical education. (A) Teaching and learning in adventure education will be organized around an instructional models approach. There will be three main sections that cover structures in this model; (a) content, (b) teaching and learning processes and (c) adventure education in physical education. (B) An ecological perspective in physical education will be organized around global structures in the ecological perspective; tasks and task systems.

ADVENTURE EDUCATION

Adventure education is one instructional model that may possess a strong program of action and some form of content-embedded accountability (Hastie, 1995). Throughout this section the connection between structures in adventure education and ecological constructs, such as tasks, a PoA and content-embedded accountability, will be established. Developing a link between these constructs and adventure education structures will strengthen the argument for utilizing an ecological perspective to better examine learning in adventure education.

The following sections are organized around adventure education content and instruction, and adventure education learning processes. First, I will establish the content base in adventure education, as content to be taught is the foundation for task selection and sequencing. Second, I will review the espoused teaching methods that are utilized in adventure education. Third, I will cover theoretical models that depict the learning possesses in adventure education. Finally, I will examine instances of adventure

education in physical education. The major sections in this section of review will be a) adventure education content b) adventure education processes, c) adventure education in physical education and d) a summary.

Adventure Education Content

While much has been written on adventure education little has been research based. For instance, in reviewing a popular text such as *Adventure in the Classroom* (Henton, 1996) it becomes evident that although the foundation for the book is credible research, the majority of it has been conducted in other contexts rather than adventure education contexts. Similarly, research on the instructional and learning processes in adventure education is sparse. The issue of a paucity of research is noteworthy as research on teaching and learning supports the importance of context and instructional variables. For example, task design, sequencing of tasks and how tasks could facilitate the process of students situating knowledge will be greatly affected by the espoused content and structures in various instructional models. More specifically, in the discipline of physical education students have been described as having highly developed forms of knowledge in some content areas of movement, while they simultaneously articulate misconceptions of content in other areas (Griffin & Placek, 2001). In both instances of highly developed forms of knowledge and areas of misconceptions, researchers and teachers must have a common definition of content to be taught if lessons and investigations are to be conducted. In the subsequent section of review, all attempts were made to present research findings from investigations conducted in adventure education contexts, however the majority of literature in the area has been theoretical writings and models.

Defining Adventure Education Content

Content is subject-matter to be taught to students. Content to be taught forms a foundation for task development and task sequencing. Without a sound conception of content, teachers and students enter the learning ecology with little synergy to complete academic work. Content within educational disciplines can be conceived in various ways. For instance, physical education content has been defined at the elementary levels as skill themes and movement concepts (Graham, Holt-Hale & Parker, 2004). Content at the secondary level in physical education has been described as sport skills, games and lifelong activities (Griffin, Mitchel & Oslin, 1997; Mood, Musker & Rink, 2003). The prior examples provide a view of how various writers and researchers describe physical education content with respect to instructional modeles.

The National Association for Sport and Physical Education (NASPE) (1995) has identified content standards that similarly reflect areas of motor skills and knowledge. Also included in the NASPE standards are the areas of social, interpersonal and intra-personal development. Fewer physical education teachers and researchers, however, have operationalized this content in instructional modeles. Adventure education is one instructional model that espouses interpersonal and intra-personal development as content.

Adventure education is an instructional model in the broader area of outdoor education. Outdoor education places learning emphasis, primarily, on relationships between people and natural resources (Priest & Gass, 1997). Priest (1986) further delineated relationships within outdoor education as: interpersonal, intrapersonal, ecosystemic, and ekistic. Interpersonal relationships are human related, specifically

dealing with two or more people. Intrapersonal relationships are "self" oriented, primarily concerned with personal attributes such as self- confidence. Ecosystemic relationships are based in the concept of "interdependence" between living organisms in ecosystems. Finally, ekistic relationships are more global environmental relationships developed by interactions of human society and the natural environment. These four relationships serve as a foundation for content development in outdoor education. Adventure and environmental education are sub-areas of outdoor education and address content respective to various relationships (Priest & Gass, 1997).

Priest and Gass (1997) explained that the primary content focus in adventure education is interpersonal and intrapersonal relationships. Interpersonal relationships, more specifically, are defined by tasks that involve problem solving, communication, cooperation, and decision-making. Intrapersonal relationships encompass tasks associated with personal challenge where individuals encounter physical, social, and mental challenges to overcome. Adventure education has globally represented content similar to the NASPE Standards (1995). Identifying content to be taught to students is one structure to be assessed in an instructional model. A teacher and/or researcher can begin to examine the structure of task sequence or content development over the course of a lesson or unit as instructional models more explicitly define content.

Content Development in Adventure Education

Bisson (1997) conducted one of the most recent investigations on sequencing in adventure learning experiences. The researcher's premise was that there is an assumption in adventure education where each adventure education experience utilized a unique sequence of activities for various groups. Five predominant sequencing models were

reviewed in an attempt to examine this assumption that adventure programs are designed in a unique fashion to meet the needs of individual groups (Bisson, 1997). The researcher, however, concluded that there is universality in sequencing of activities in adventure education programs. When compared to stages of group development all five of the predominant sequence models assumed a similar progression (Bisson, 1997).

Bisson (1997) further explained that planning for adventure-based learning sequences can be viewed on a continuum that has three levels.

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insert figure 1

The Multi-layer Sequence Model (Bisson, 1998) has three levels of sequencing placed along a continuum. First, is the marco-sequence (Bisson, 1998) described as a fixed sequence of activities and represents stages of group development. Thus, adventure activities following this macro-sequence would progress through activities that focus on the following topics; group formation, group challenge, group support and group achievement (Bisson, 1998).

The second sequence is known as the meso-sequence and is characterized as partially fixed, yet flexible enough to allow a group to revisit goals in the macro-sequence (Bisson, 1998). The flexibility in this instance allows for subtle nuances and shifts in the group's development. The flexibility at this level allows a facilitator to move between activity classifications to meet the needs of the group.

The third sequence labeled the micro-sequence refers to specific activities classification within the respective stages of the meso-sequence. For instance, within the

group formation stage the positioning and sequence of deinhibitizer activities are flexible, since any activity in the classification can be positioned before or after another.

The Multi-layer Sequencing Model (Bisson, 1998) has challenged many of the held assumptions regarding sequencing of adventure activities, specifically that programs and experiences are uniquely designed for specific groups. Bisson's (1998) research has provided an initial description of (a) how sequencing is often dependent on the developmental stages of groups, (b) the necessity of some flexibility in sequencing to make adjustments during a lesson if a group regresses or excels in performance and (c) positioning and sequencing of activities within adventure education lessons. His findings, however, could be better viewed and explained through an ecological perspective. For instance, the finding that the macro-sequence is fixed and based on group stages could be viewed as an initial description of a program of action. If a program of action is a broader representation of how an instructional model espouses sequencing content and management across lessons, then it makes sense that it is fixed, universal in nature and dependent on developmental stages. With respect to the flexibility of the micro-sequence, however, more research needs to examine the sequence through a pedagogical lens. A purely activity driven analysis or global group development analysis leaves many questions with respect to learning unanswered regarding the sequencing of tasks within a lesson and the role of content-embedded accountability in learning within adventure education.

Adventure Education Processes

Adventure education advocates have proposed theoretical models and guidelines for facilitation of adventure education experiences (Association for Experiential

Education, 1995). Similarly, advocates have depicted learning processes as a result of student engagement in adventure education. In this review the term processes in adventure education is used to describe the teacher's facilitation and the students' learning processes that result from engagement in adventure education learning experiences. This section of review will have two main sections, (a) facilitation of the learning experience and (b) learning processes in adventure education.

Facilitation of the Learning Experience

Facilitation is usually associated with instruction. Facilitation is the act of assisting students in the generalization and transfer of learning with the expressed purpose of influencing change in the students' lives (Priest & Gass, 1997). Gass (1993) described facilitation as "those techniques that are used to augment the qualities of the adventure experience" (p 219). The main features of facilitation in adventure education include the following tasks: (a) creating the learning environment, (b) leading the learning experience and (c) processing the learning experience.

Creating the Learning Environment

Creation of a positive learning environment is cited in various educational textbooks as a critical step in the teaching and learning process (Saphier & Gower, 1997; Siedentop & Tannehill, 2000). The importance of a safe and supportive learning environment is no less important in adventure education. The term adventure, however, connotes an element of risk, which could be construed as contrary to safety. Noteworthy in adventure education, however, is the pedagogical use of adventure in the learning environment. Challenges in adventure education are best identified through the interactions and group processes utilized during inter and intra personal development.

The hallmarks of the learning environment in adventure education can be described as, significance, support, stimulation and satisfaction (Henton, 1996). These four hallmarks, often found in other educational contexts, are the foundation for defining the roles of the learner and teacher in adventure education. These hallmarks are more personalized in adventure education in instructional strategies such as Challenge by Choice (Henton, 1996; Schoel, Prouty & Radcliffe, 1987) and the Full Value Contract (Henton, 1996; Schoel, Prouty & Radcliffe, 1987) that allow students an opportunity to become vested in the learning experience and assist the teacher and students in shaping the learning environment.

Challenge by choice is an operating principle in most adventure education learning environments. Challenge by choice is based on the belief that challenge is a critical factor in behavior change and learning. Inherent in challenge is the idea of taking physical, cognitive and social risks. The role of challenge, then, in the learning environment is that of the learner taking physical, cognitive, and/or social risks. For instance, while repetitive tasks may allow learners to work in a state of homeostasis, learning often occurs in a "zone of proximal development" (Vygotsky, 1978). Vygotsky (1978) explained that a "zone of proximal development" is a learning situation where students may possess some skills and knowledge, however to be successful they must build new skills. Beginning an adventure education experience by defining challenge by choice, then, is an upfront strategy to inform students that they should be learning in a "zone of proximal development" or, in other words, how academic work will be completed. While challenge and risk are defining characteristics of creating the learning

environment in adventure education, student choice to engage in an appropriate level of challenge is also imperative.

Challenge by choice is about taking appropriate risks. Teachers and student learning groups will often help individual students define choices they make with respect to appropriate challenges. Challenge by choice, then, is an attempt to help motivate students to learn by empowering them to make good decisions (Schoel, Prouty & Radcliffe, 1987). Once the operating principle of challenge by choice has been established teachers will often have students set learning goals that are based on the challenge by choice principle.

A Full Value Contract (FVC) (Henton, 1996; Schoel, Prouty & Radcliffe, 1987) is a learning opportunity where students set individual and group goals. More specific learning goals are created by students; however, a FVC has five global commitments to which all learners adhere, (a) be here, (b) be safe, (c) set goals, (d) be honest, (e) let go and move on (Henton, 1996). The FVC operationalizes many of the values present in the challenge by choice principle. For instance, the conceptions of being safe, here and honest are defined by the learners as they set learning goals in performance based language. As goals are defined teachers and students are able to recognize specific behaviors that are desired in the learning environment and, eventually, are able to hold others accountable for their actions.

Challenge by choice and the FVC potentially play a crucial role in the development of a strong PoA. Challenge by choice and the FVC are the foundation of creating a safe and supportive learning environment in adventure education. Significant, however, is the positioning and sequencing of these two instructional underpinnings early

in the adventure education learning experience. The early positioning of challenge by choice and the FVC meets the developmental needs of a group in the forming stage and directly assists teachers and students in defining how academic work will be completed. It is through the positioning and sequencing of these early learning opportunities (challenge by choice and the FVC) that students become aware and involved in directing the learning environment. Once a facilitator has assisted the students in defining or creating the learning environment it becomes paramount to direct attention to the delivery of learning experiences or how will students engage content in the newly created learning environment.

Leading the Learning Experience

The majority of adventure education advocates define the dominant learning approach as experiential education. Experiential learning can be defined as the explicit use of prescribed experiences that are followed by learners reflecting on connections between their actions and consequences that leads to generalization with the intention of applying new knowledge in similar situations. Consequently, examining how facilitators lead adventure education experiences demands an analysis of the instructional tenets and models that assist facilitators in the delivery of experiential education.

Examining instructional behaviors and connecting these behaviors with sound learning theories could be one attempt to analyze how facilitators make sense of pedagogical decisions. In a review of research on learning theories Kraft (1990) examined briefly learning theories with respect to the delivery of experiential education. Kraft (1990) explained that experiential education can find underpinnings in learning theories such as behaviorism, cognitive and constructivism. Though the connections

between learning theories and instructional models have not been specifically investigated in adventure education, researchers have developed various theoretical models that represent a facilitator's instructional processes in adventure education contexts.

In a description of experiential learning Joplin (1981) explained that experiential learning could be conceived as five stages that are: (a) a focus stage, (b) challenge and action stage, (c) a support stage, (d) a feedback stage and (e) a debriefing stage. The focus stage "includes presenting the task and isolating the attention of the learner for concentration" (Joplin, 1995, p16). The action stage is represented by facilitators letting learners engage in tasks mentally, physically, emotionally, and/or spiritually (Joplin, 1981). A critical aspect of the action stage is the role of the learner's engagement with the task. If a teacher does not allow students to realize the opportunities within and consequences of a learning task, then, he/she has not placed the student in a position of responsibility for their learning (Joplin, 1981).

The third and fourth stages of the model are support and feedback, respectively. Examples of support in a learning environment are resources to achieve defined goals as well as group members sharing individual frustrations in the learning process (Joplin, 1981). Feedback is a system of gathering information on performance. In an experiential setting, feedback is gathered on both performance as well as process. In both of these instructional instances the role of the facilitator is to allow students to experience how support and feedback may influence the learning process as the group engages in the set task.

The final stage is known as debriefing, which involves the analysis of feedback and support with respect to task engagement. In addition, during the process of debriefing

learners articulate publicly what has been learned (Joplin, 1981). It is during this stage that assessment is built by the students: under the guidance of the facilitator. At the completion of this final stage the cycle would once again begin.

Joplin's (1981) model described the process through which facilitators should design and lead instances of experiential learning. Important to recognize is the distinct position of the action stage in relationship to reflection or debriefing. If a facilitator was to use Joplin's (1981) model there is little ambiguity in recognizing that student engagement begins the sequence of instructional events. Student engagement prior to reflection resembles Resnick's (1987) definition of "out of school" learning. In this instance, Joplin (1981) is advocating, similarly to Resnick (1987), that learning contexts resemble structures found in "out of school" contexts. While Joplin (1981) presented a model to represent a singular learning experience, Gibbons and Hopkins (1980) attempted to classify levels of experientiality to assist facilitators in identifying and developing learning experiences.

Experientiality is a representation of how similar a learning experience is to a "real world" context. Experientiality is assessed as a compilation of a student's active engagement and level of direct contact with content (Gibbons & Hopkins, 1980). Gibbons and Hopkins (1980) theorized that there were five criteria used to assess experientiality; a) the more "direct" the experience, the more experiential, b) students/participants involvement in the planning and execution, c) students/participants responsibility for outcomes, d) students/participants responsibility for mastering goals of the experience, and e) growth related to the experience is positive (Gibbons & Hopkins, 1980). Using these criteria, increasing levels of experientiality can be identified.

The five levels of experientiality are: less to more experiential, receptive, analytic, productive, development, and psychosocial (Gibbons & Hopkins, 1980). Within each mode there are two sub-modes. The receptive mode is characterized by representations of experiences being presented to learners that assume a passive role during the experience (Gibbons & Hopkins, 1980). Sub-modes in the receptive mode are simulated experiences, such as watching a movie about the subject, and spectator, where the students watch the real experience but do not participate.

In the analytic mode learners engage in the field setting (Gibbons & Hopkins, 1980). Exploratory, the initial sub-mode in the analytic mode, offers experiences based on data gathering, while the second sub-mode, analytical, students systematically investigate and apply theory to solve practical problems (Gibbons & Hopkins, 1980).

In the productive mode students assume more responsibility for learning. The sub-modes for the productive level are generative and challenge. Students in the generative sub-mode create or build theories, while, the challenge sub-mode allows them to choose the pursuit of goals with which they will struggle to accomplish (Gibbons & Hopkins, 1980).

The development mode is identified when learners design and execute long-term programs. The two sub-modes within the development mode are competence and mastery. These are differentiated by (a) competence, thereby focusing on identifying skills and knowledge of the environment and (b) mastery, those intrinsic desires which encourage the development of commitment and pursuit of mastery of the associated skills in the subject (Gibbons & Hopkins, 1980).

The final mode, psychosocial, is characterized by the actualized nature of the learners. The sub-mode of personal growth encourages learners to develop and refine self-reflective abilities. Social growth, the second sub-mode in this level, focuses on the social interaction of the individual (Gibbons & Hopkins, 1980).

Joplin's (1981) and Gibbons and Hopkins' (1980) models are representative of the importance of directing a facilitator's attention to providing direct experience as the impetus in the learning process. Noteworthy is how these models assist in directing the facilitators behaviors when it comes to pedagogical decisions in the provision of learning tasks and direct experience. While Joplin's (1995) and Gibbons and Hopkins' (1980) models may assist facilitators in defining the provision of learning experiences one must also consider models that direct the facilitators attention in processing the experience.

The most current synopsis of facilitation is an evolution to generations of facilitation (Bacon, 1987; Doughty, 1991; Priest and Gass, 1997). The first three generations of facilitation are: (a) letting the experience speak for itself, (b) speaking for the experience and (c) debriefing the experience (Priest & Gass, 1997). The first three methods of facilitation are best describes as learning by doing, learning by telling and learning through reflection, respectively (Priest and Gass, 1997). All of these methods are utilized post experience and react to the events during the experience.

The last three generations of facilitation: (a) frontloading the experience, (b) framing the experience and (c) indirectly frontloading the experience shift the focus to pre-experience or during the experience. Teacher/facilitators using these latter three methods assume a more proactive role that enhances future reflection. During the frontloading of experience, for instance, the teacher facilitator would emphasize learning

objectives right before the activity. The emphasis however, is not directly told to the students; in contrast, a series of questions focused on the learning objectives are asked to focus the students (Priest & Gass, 1997). With this synopsis of generations of facilitation a facilitator can begin to examine the role of processing or reflection in experiential education. A further step a facilitator could take with this synopsis is how reflection and/or cognition are used as a pedagogical tool in designing the learning experience. One of the more complete representations of experiential learning, which includes defining experience and the role of processing was created by the Association of Experiential Learning.

The Association of Experiential Education (AEE) organized a list of principles of experiential education. The AEE is an international organization that advocates for the use of experiential teaching methods in diverse settings ranging from education to therapeutic programs. Garvey (1990) more specifically defined the mission of the AEE as one that is

> committed to the practice and promotion of learning through experience, and to the collection and dissemination of information related to the broad topic of experiential learning (p 76)

To date, the AEE has lived up to a goal of collecting and disseminating information with respect to experiential learning. For instance, the AEE publishes the Journal of Experiential Education and a newsletter. The association has also created and published materials to assist practitioners and programs a few of which are, the program accreditation process (Williamson & Gass, 1993) and practices of experiential education

(AEE, 1995). The overarching principles for practice of experiential education are the following:

1. The use of direct and purposeful experiences
2. Challenges that are appropriate for clients
3. Activities have natural consequences
4. Changes that are made are client based
5. Changes are relevant for clients' future
6. Synthesis and reflection are the process to examine change
7. Clients are personally responsible in their experience
8. Clients are continuously actively engaged in the program (AEE, 1995)

The AEE principles serve as a culmination of identifying contextual variables in the delivery of experiential education. Noteworthy is that this list contains many of the instructional qualities espoused in cognitive learning theories, specifically constructivist approaches. However, few researchers have asked empirical research questions or investigated these espoused principles with respect to the learning processes in adventure education. Rather, more literature exists that hypothesizes on the learners' processes in adventure education. All of the facilitation models presented in this section are designed to assist facilitators in the delivery of experiential learning. One similar trait in all of the prior discussed models is the explicit positioning and use of direct experience in the learning process. It is the consistency of the message in all of these models that truly assists the facilitator in making impact decisions. For instance, when a facilitator is leading an experience they know that they should begin by focusing the groups' attention to content and setting parameters for the learning activity, not telling them how to do the activity. Though the message in these models is consistent, a review of learning models used in experiential education completes the picture for leading adventure education learning.

Learning Processes in Adventure Education

Learning models in adventure education are representations of how learners engage, internalize content, and change as a result of the learning experience. One of the most espoused adventure education learning models is the Outward Bound process (Walsh & Golins, 1976). The Outward Bound Model was an attempt to organize the elements of an adventure education experience into a replicable process (Walsh & Golins, 1976). There are seven major components of the Outward Bound Model (Walsh & Golins, 1976), the learner, prescribed physical environment, prescribed social environment, characteristic set of problem-solving tasks, state of adaptive dissonance, mastery and finally reorganization of meaning and direction of experience. The following is the model as presented by Walsh and Golins (1976)

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insert figure 2

In defining the learner in this model Walsh and Golins (1976) explained the conception that the learner be self-motivated to engage in the experience is paramount. Once the learner has self-identified as a motivated learner he/she is placed into a prescribed physical and social environment.

Adventure education professionals have, more recently, broadened Walsh and Golins' (1976) contextual definition of physical and social environments to include challenge/ropes courses as well as group initiatives and other activities. Of importance to note is that the physical environment is novel to the learner (Priest & Gass, 1997; Joplin, 1981; Walsh & Golins, 1976). The social environment is best described as small group

work (ranging from 7-15 people). Within the social context, learners face adversities associated with group dynamics, such as, trust, cooperation, conflict resolution, individuality and support. This physical and social context is the stage in which learners encounter a characteristic set of problem-solving tasks.

In defining a characteristic set of problem-solving tasks Walsh and Golins (1976) explained the emphasis on multi-sensory experiences whereby challenging learners to engage in all learning domains. The authors further detail that these problem-solving experiences should be incremental or sequential in scope. Limited research, however, has been conducted on the manipulation of variables in the prescribed physical and social environments to better sequence experiences/activities with respect to academic tasks.

One of the more widely accepted and utilized learning models is the Experiential Learning Cycle (Henton, 1996). The cycle has four distinct stages though which students progress, (a) activity, (b) reflection, (c) generalizing and abstracting and (d) transfer.

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insert figure 3

On both the Outward Bound Model and the Experiential Learning Cycle, two concepts are critical; the provision of a meaningful experience (Walsh & Golins, 1976) and reflection on the experience which brings order to content and allows for integration with respect of future events (Csikszentmihalyi, 1990). Reflection, thus, is a learning task conducted in adventure education with the explicit purpose to challenge students to examine actions and knowledge while emphasizing individual change through reorganizing meaning and direction of future experiences (Walsh & Golins, 1976).

Adventure Education in Physical Education

Adventure Education has been described as a "generic" or "widely used product" (Rohnke, 1984). This generic depiction of adventure education recognizes the wide use of experiential learning. Adventure education, however, has more specifically delineated content, and it now can be recognized as an instructional model where experiential learning is an assumed learning process within the approach. One instance of adventure education becoming a more popular instructional model is the inclusion of it in physical education curricula.

Though many physical education programs include some form of adventure education, little research has been conducted in these settings. In one study Hastie (1995) examined the ecology of a physical education class while attending an outdoor adventure camp. Though the setting was at a camp, rather than a school, he presented results that slightly differ from traditional ecological research findings.

Hastie (1995) described the managerial, instructional and student social task systems in this ecology. While at this camp students were held highly accountable for managerial tasks, but still, these tasks were completed quickly and efficiently. By the end of the week accountability for completion of managerial tasks shifted from teacher to students. Three factors may have contributed to the completion of managerial tasks and the shift to a student-centered system of accountability. First, managerial tasks were explicitly presented to students. Second, in the beginning of the week teachers clearly defined the expectations for managerial tasks. Finally, teachers presented that this outdoor learning center was the students' center. A common ethic in the out-of-doors is a "leave

no trace" philosophy. This ethic is based on the premise that if the user or student identifies with the resource or facility they will use it with greater care.

In the instructional task system Hastie (1995) presented two types of activities, delayed gratification and peak experience. Delayed gratification activities were those that took a longer time to complete, students however experienced a greater satisfaction upon completion compared to peak experience tasks. Peak experience activities provided instant gratification and students were more aware of the internal and group processes during these instances. In both the instructional and managerial task systems in this ecology work was completed. Students were engaged and explained that the quality of their experience was high. Important to examine, however, is the system of accountability with respect to the completion of tasks (Doyle, 1983).

The systems of accountability in this adventure education ecology differed from dismal depictions portrayed in many physical education ecologies. In this setting accountability shifted from a highly teacher centered model to one where students made more decisions. For instance, challenge by choice was presented in the beginning of the adventure education unit at this camp and detailed that each individual was responsible for making their own decision with respect to effort. Challenge by choice in this instance could be described as informal accountability (Hastie, 1995).

The student social task system is often described in physical education settings as subversive and operates in the shadows of the instructional task system. In an adventure education context, however, social interactions become part of instructional tasks (Hastie, 1995). Hastie (1995) explained that in this setting the student social system may have been driving the instructional task system.

Hastie's (1995) investigation provides a descriptive overview of the ecology of an adventure. The findings in this study describe a general ecology related to the managerial, instructional and student social systems that were created through teacher and student interactions. Hastie's (1995) research is a solid beginning in using the ecological framework to examine the features of an adventure education ecology. Future researchers should build on this study and foreground learning in the ecology and examine a PoA and content-embedded accountability with respect to student learning.

Future research on the ecology of adventure education in physical education should include constructs such as a program of action and content-embedded accountability. More specifically this type of research will investigate the positioning and sequencing of content and management within lessons, structures that focus teachers and students on desired outcomes, methods to achieve desired outcomes and the intrinsic cognitive demands embedded in tasks as they are sequenced within and across lessons.

In summary, adventure education as an instructional model provides structures that assist teachers in the delivery of interpersonal and intra-personal content. Existing structures in adventure education are; espoused content, espoused facilitation techniques, models that represent student learning, and espoused methods of assessment. One attempt to see the structures within the adventure education model is in figure 4.

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insert figure 4

First, content to be taught is defined as interpersonal and intra-personal development (Priest & Gass, 1997). As content is better defined teachers and students can

identify the outcomes for learning. This critical first step assists in defining the efficacy of an instructional model. Similarly, the identification of content to be taught is important in the development of a sound learning ecology. The role of content identification with respect to examining a learning ecology becomes evident when a construct such as a PoA is included. For instance, to examine a PoA one must begin by establishing desired student outcomes.

Second, adventure education as an instructional model espouses a dominant mode of facilitation, such as identifying group stages and respective developmental needs, providing active experience as a means for students to build cognitive representations of broader concepts (ie; activity, reflection, generalizations and transfer), and processing an experience via reflection. Researchers and teachers need to better understand the importance of these facilitation behaviors as it impacts student learning and the learning ecology. A PoA is an ecological construct that may shed light on the relationship between sequencing and student learning.

Third, experience is critical in learning. Experience can be equated with tasks in which students engage throughout learning. The design of these tasks and/or experiences could impact learning. Content-embedded accountability is a construct that could assist adventure education researchers in better understanding how learning tasks can assist students in developing more complete schema with respect to interpersonal and intra-personal content.

Fourth, student reflection on experience provides a means of assessment for students to examine behaviors in context, while directing a student's attention to future situations. Reflection could be a link to examine how students in an adventure education

experience are challenged to examine past experiences and reorganize schema to meet the demands in future learning or work tasks.

Finally, a recommendation for futures researchers is to design investigations that examine a learning ecology in adventure education and foreground constructs such as a PoA and content-embedded accountability to better understand how students learn in adventure education experiences. The following is a representation (see figure 5) of how an ecological perspective informed of structures in adventure education could be used to examine the learning ecology.

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insert figure 5

AN ECOLOGICAL PERSPECTIVE IN PHYSICAL EDUCATION

The ecological perspective was first introduced by Walter Doyle (1977) as a means to examine the interdependent processes constructed by teachers and students in academic settings. Doyle (1983) explained that academic work that gets accomplished in teaching and learning is not solely dependent on the teacher. He, instead, suggested that teachers, students and content interact to co-create an overall classroom ecology.

In the ecological perspective the dynamics of learning is captured through an examination of various contextual variables that interact throughout the teaching and learning process. For instance, what teachers want to accomplish is often dependent on whether students perceive content as meaningful. Thus, the factors that interact in this instance are teachers, students, and content. The order of this review section was designed

to first introduce the most relevant component of an ecological perspective, specifically the program of action (PoA).

A PoA is the combination of "positioning and sequencing of content and management within lessons" (Hastie & Siedentop, 1999; p. 12). This definition unites many of the discrete curricular and instructional variables that were once separated in early positivistic research. According to Hastie and Siedentop (1999) a strong PoA assists in the determination of "appropriate behaviors for students during different instructional context" (p.12).

The PoA is not fixed or linear, whereby teachers do one thing and students respond, rather it is a dynamic process that focuses both teacher and students on (a) student outcomes, (b) methods to achieve desired outcomes, and (c) contextual resources needed and available for achievement (Hastie & Siedentop, 1999). The essence of the dynamic bi-directional process is captured through an examination of how teachers plan, monitor, and respond to students' behaviors as both engage within the learning environment. The PoA may be strong creating harmony between subject-matter, management, and instruction or weak, resulting in an ambiguous learning environment.

One way a PoA may be viewed is through isolating and viewing primary and secondary vectors. Vectors represent levels or plains that exist independent of each other. Merritt (1982) defined a vector as classroom activities that create and sustain momentum in the learning environment. Conceptually, Merritt (1982) described vectors that interact in classrooms and direct content and events through a progression of behaviors. Vectors have been identified as being either primary or secondary (Merritt, 1982). Primary vectors are established by the teacher and focus on the agenda, lesson order, and activities that

comprise a lesson (Hastie & Siedentop, 1999). Secondary vectors tend to be student driven and often established to challenge the teacher-centered primary vector (Hastie & Siedentop, 1999). Noteworthy are the similarities between Doyle's analysis of a bi-directional process and Merritt's description of interaction between both primary and secondary vectors in learning. Thus, the classroom ecology is created by teachers and students responding to each other with respect to academic work to be accomplished. More recently, Hastie (2000) introduced content-embedded accountability as a third vector that vigorously interacts with the primary and secondary vectors within the ecology.

Hastie's (2000) introduction of content-embedded accountability as third vector provides a valuable analysis with respect to a program of action. First, by introducing content-embedded accountability as a construct that interacts with students and teachers in the ecology Hastie (2000) has recognized the efficacy of accountability embedded in the learning experience or tasks. Second, while prior researchers have associated the role of accountability in learning as critical. Hastie's (2000) elevation of accountability to status of vector recognizes the integral role of sequencing content-embedded accountability. Future researchers that investigate the PoA must remain cognizant of the dynamics of positioning management, content, and instruction with respect to content-embedded accountability.

In summary, an ecological perspective is grounded in the concept of a program of action. The ecological process is bi-directional, whereby students and teachers together influence the development of how academic work gets completed. The strength of a PoA is determined by the congruence and harmony established between the teacher-centered

instructional and managerial task systems and the student driven social task system. Examination of more fundamental units within the ecological paradigm is necessary. The following sections will be covered in this part of the review (a) tasks, (b) task systems, and (c) a summary.

Tasks

Doyle (1983) defined tasks as the most basic unit of analysis in the ecological perspective. Tasks are activities or work that direct students' attention to specific content. Tasks presented by teachers are most often instructional or managerial. Instructional tasks are those directly related to subject-matter. Managerial tasks assist in developing rules and routines in the learning environment. In contrast, social tasks are most often initiated by students in response to instructional and managerial tasks. There are two critical components with respect to tasks, defining what tasks are and the influence of context on task development.

Tasks specify contextual aspects of students' information processing. Specifically, a task is defined as the learning goals as well as operations and resources needed to achieve goals. Thus, tasks structure a learning experience and assist students in developing and acting on their thoughts (Dolye & Carter, 1984).

If tasks are activities or work that define how students engage content, then the primary focus is on students' performance, respective to the learning objectives and contextual resources. Research in physical education that explicitly examines tasks can be categorized into two areas, task development and task presentation.

Identifying the connection between tasks and a PoA is critical to examine how a PoA is created. Tasks are moments in a lesson that define the structure of how work will

be accomplished, whereas a PoA is developed through sequencing multiple tasks throughout a single or multiple lessons. Noteworthy, however, is the idea that tasks and a program of action are developed through teacher and student interactions.

It is through a teacher-student exchange that tasks are developed and defined. In this process teachers present tasks, students respond, teachers react to student responses and the tasks are developed (Alexander, 1982). Throughout this exchange factors such as ambiguity and risk, student negotiations, and teacher boundaries can be identified as factors that influence task development.

How well a task defines the learning experience depends on multiple contextual factors, such as teacher explicitness, content being taught, and resources available to complete work. Researchers in physical education have examined the interaction between teachers and students as tasks are developed throughout a lesson.

Ambiguity and Risk

In all classrooms teachers present tasks to students. Ambiguity is evident when there is dissonance between the stated task and the performance expectation defined by the teacher. Risk refers to the interplay between the level of ambiguity, tasks difficulty, and systems of accountability (Siedentop, 1998). Ambiguity and risk are created through the teacher, student and content interaction.

Ambiguity is most directly affected by the explicitness of teacher-stated tasks. A task can be categorized as explicit, partially explicit, or implicit (Jones, 1992; Tousignant & Siedentop, 1983). For instance, low ambiguity occurs when teachers are explicit regarding performance execution, conditions, and evaluation criteria. In contrast, when teachers present implicit tasks, information is less clear and ambiguity levels increase. In

physical education, tasks are most commonly presented in a combination of explicit, partially explicit, and implicit terms (Jones, 1992). Physical educators most often present instructional tasks, those related to student performance of content, in implicit terms (Lund, 1992). Managerial tasks, however, tend to be presented more explicitly resulting in less confusion for students (Lund, 1992). Lund (1992) suggested that one strategy to present more explicit instructional tasks is to develop better goals and criteria for student performance. Jones (1992) explained that implicitly stated instructional tasks often lack specific criteria for evaluation. The connection between evaluative criteria, ambiguity, and task difficulty interact in the creation of risk.

Doyle (1983) defined risk as the criteria with which a student will be evaluated as well as the likelihood that the student's performance will meet the set criteria. As tasks become more difficult and involve higher levels of accountability, potential risk increases, whereas less difficult tasks with lower levels of accountability may provide less risk, as any answer may be accepted. In both instances, high and low risk, students react to a teacher's level of explicitness with various responses (Marks, 1988).

Ambiguity and risk are a result of students reacting to a teacher's level of explicitness with respect to engagement in a task. There is a connection between ambiguity and risk and a program of action (PoA). A strong PoA defines student outcomes, methods to achieve desired outcomes, and contextual resources need for achievement. Researchers have described less ambiguous and risky learning environments when teachers present tasks in more explicit terms (Lund, 1992; Jones, 1992). When teachers adhere to presenting tasks in more explicit ways the definition of student outcomes, methods to achieve desired outcomes, and contextual resources needed

for achievement are well defined and the result may be a strong PoA. A remaining variable in this context, identified as student negotiations, is a potential student response to these various levels of ambiguity and risk.

Student Negotiations

Negotiations are students' responses to various levels of ambiguity, risk, and task difficulty. Negotiations have been described as typical in classrooms and gymnasia (Hastie & Pickwell, 1996; Jones, 1992). If tasks are too difficult or ambiguous students may respond with verbal and/or physical negotiation strategies (Marks, 1988). One example of examining student negotiations is the idea of task congruence (Son, 1989).

Task congruence defines the extent of a teacher's stated task is completed by students (Son, 1989). Son (1989) examined how students responded to teacher stated tasks and consequences associated with the student response. His findings suggest that congruence of student responses to teacher stated tasks are more influenced by informal contingencies and factors such as type of sport activity or student interest in content. Other researchers have identified specific student responses to teacher stated tasks.

Students in physical education negotiate tasks with teachers verbally and physically (Jones, 1992). Examples of verbal negotiations are students asking repeatedly for task clarification or bluntly asking to change the requirements of a task. In physical education negotiations have been described with various terms. Marks (1988) identified potential student responses to stated tasks as; off-task, task modification, or on-task. Tousignant & Siedentop (1983) presented potential student responses as; task-as-stated-by-the-teacher, modified tasks, deviant off-task, or competent bystander.

On-task (Marks, 1988) and "task-as-stated-by-the-teacher" (Tousignant & Siedentop, 1983) define student responses that match the defined task as stated by the teacher. "Deviant off-task" behaviors represent student responses that are overtly demonstrated and not related to any component of the stated task (Tousignant & Siedentop, 1983). Modified task (Marks, 1988; Tousignant & Siedentop, 1983) and competent bystander (Tousignant & Siedentop, 1983) are examples of student responses where they redefine the task or assume a nondescript role as to hide their lack of performance.

Modifying a task or acting as a competent bystander evoke various teachers responses, dependent on their boundaries. For instance, some teachers will allow task modification or competent bystander behavior if students do not impede the teacher's agenda.

Negotiations are the interplay between students and teachers as a result of ambiguity and risk in the learning environment. A strong PoA may be developed as a result of higher levels of teacher explicitness and lower levels of risk. There is no research, however, that specifically examines a potentially strong PoA and the influence on teachers and students in physical education. In physical education, however, research on task expectation and task congruence reveal findings that may shed light on the development of a strong PoA.

Task expectations

Task expectations are those expectations that teachers and students develop with respect to the procedures and quality of performance. Student negotiation of tasks is initiated by the student's expectations of their performance in relationship to set criteria.

Examples of student expectations are to pass the course and socialize (Allen, 1986). Siedentop (1988) suggested the potential influence of the student social agenda has significant ramifications on instructional and managerial tasks.

Teacher expectations are more defined by content and student compliance to managerial tasks. Some teachers begin with well intentioned goals and try to enact a strong program of action through well defined tasks and systems of accountability. However, in the face of negotiations many teachers respond by trading-off instructional tasks for student compliance with managerial tasks. An example of this tradeoff is allowing students to socialize to gain compliance throughout the lesson (Hastie & Pickwell, 1996; Jones, 1992). Another, more dramatic, instance is actually halting instruction and allowing students to only socialize in a non-disruptive manner (Hastie & Saunders, 1990).

Task expectations, both students' and teachers', can be view with respect to a PoA. As described earlier a PoA can resemble primary and secondary vectors. Ambiguity and risk influence negotiations that are present in physical education classes. Both student and teacher expectations influence behaviors as negotiations unfold. This process can be describe as the collision of the primary and secondary vectors. Teachers try to initiate the primary vector, while some students try to subvert it by initiating their secondary vector. Where there is evidence of a strong PoA the collision renders fewer casualties and learning opportunities increase. Students and teachers in this instance have developed a common vector or found ways to overlap vectors. Examples of this scenario have been initially documented in lessons in Sport Education and Adventure Education. One hypothesis is that the student social task system is more in line with the instructional task

system (Hastie, 1995). More specifically, in this hypothesis, instructional tasks may have been designed and sequenced more appropriately in these lessons and that the context in which academic work is being completed allows students to engage content in meaningful ways while socializing.

Task Systems

A task system is comprised of a set of tasks related to specific content in a lesson (Tinning & Siedentop, 1985). Originally, in the physical education literature three task systems were identified: instructional, managerial, and transitional (Tousignant and Siedentop, 1983). Tousignant and Siedentop (1983) identified managerial tasks are those that deal with issues such as attendance, dress for class, and students behavior throughout the class. Instructional tasks were classified as motor and cognitive tasks to be accomplished by the students. Transitional tasks in the physical education ecology were identified as organizational issues such as moving the group or equipment. In subsequent analyses the transitional task system was included with the managerial task system (Siedentop, 1998). Jones (1992) provided further explanation of the effects of student social behaviors on the teaching and learning process with the addition of the student social task system. Observing a teacher and students' behaviors in various tasks provides one method for examining the task system (Doyle, 1992).

The Instructional Task System

Research on the instructional task system in physical education has received the greatest attention (Alexander, 1983; Graham, 1987; Jones, 1992; Lund, 1992; Marks, 1988; Rink, 1998; Siedentop et al., 1994; Silverman et al., 1995; Son, 1989; Ward, 1993).

Task development and task presentation provide two frames for an examination of these research findings.

Task development has been represented through the sequencing of tasks with an explicit focus on content (Rink, 1998). Rink (1998) defined this sequencing process as content development and categorized instructional tasks as informing, refining, extending and applying. In this categorization, informing tasks are those, which make students aware of upcoming events and requirements during academic work. Tasks concerned with the improvement of quality of performance are refining tasks. Extending tasks challenge students to perform in more complex scenarios. Finally, applying tasks are those where students apply skills in controlled but more realistic situations. This developmental analysis has been used as a lens for other research investigations. Globally, recommendations for sequencing tasks is a progression from informing to applying tasks.

In physical education, sequencing of instructional tasks differs based on teachers and subject-matter (Siedentop, Doutis, Tsangaridou, Ward, & Rauschenbach, 1994). For instance, Graham (1987) found that physical education teachers differentiate and modify instructional tasks for high and low skilled students. Research has also supported that physical education teachers spend more time with informing, extending, and applying tasks, while less time is spent on refining tasks (Jones, 1989; Lund, 1992).

Task presentation is a frame that focuses on how teachers present tasks to students. One way to designate presentation of tasks is explicit, partially explicit or implicit (Tousignant & Siednetop, 1983). Tousignant and Siedentop (1983) explained these designations are identifiable by the amount of detail that is provided prior to student engagement with subject-matter. Explicit tasks provide criteria and operational

information for students and leave little room for students to shape the tasks to be accomplished. Partially explicit tasks are those where information is provided but based less on criteria and operational information. Implicit tasks rely more on the students past experience as a source of information. The explicit or implicit nature of the stated task potentially leads to varying levels of ambiguity and risk resulting in dissonance in the learning environment.

Both high levels of explicitness and implicitness can create risk for students. For example, if a teacher presents very explicit expectations students may experience risk with respect to ability to meet expectations. Implicit expectations, however, could manifest risk due to increased levels of ambiguity with respect to quality of performance expected. The latter, within reason, could be considered more pedagogically appropriate and has been described as cognitive dissonance. There is consensus that physical education teachers primarily use partially explicit tasks when presenting instructional information (Alexander, 1982; Marks, 1989; Siedentop, Doutis, Tsangaridou, Ward, & Rauschenbach, 1994; Silverman, Kulinna, & Crull, 1995). Though some researchers have proposed that levels of explicitness with respect to task presentation have minimal effect on congruence (Son, 1989) and rate of responses (Ward, 1993). Silverman, Kulinna, & Crull, (1995) presented that task explicitness does affect ambiguity which, in turn, affects student achievement.

Noteworthy is the idea that tasks presented by the teacher may not be the actual task to be accomplished. For instance, a teacher states a task, students respond, the teacher reacts to the students' responses, and the "actual" task is more precisely defined (Alexander, 1982). It is the teacher's response that becomes the key variable in this

progression. Alexander (1982) described this scenario as the "contingency-developed task system".

With respect to the instructional task system, how tasks are presented and develop impact the PoA. Positioning of content and management within lessons is the critical component of a PoA, and findings in task presentation suggest that levels of explicitness can affect how tasks develop. Task development is more directly related to a PoA, as it assists in defining context or levels of complexity with respect to tasks. Research on task presentation and development has identified and described how teachers and students interact and respond to each other throughout task presentation and development. No research, however, has investigated how the positioning and sequencing of tasks can affect the ecology. In this instance, the primary focus of the research would be a wider focus not only on the teacher and student interactions but, also, include an explicit focus on a PoA. The inclusion of a PoA broadens the scope of variables within the ecology to include content position (or task complexity and sequencing) as another variable that interacts with teachers and students in the creation of the ecology.

The Managerial Task System

Tousignant and Siedentop (1983) defined the managerial task system as requirements associated with attendance, dress, and behaviors associated with maintaining "good standing". The first two categories, attendance and dress, are rather explicit in that the requirements are easily seen. The third category, "a member in good standing", has more to do with gaining the students cooperation so the teacher can enact the instructional task system.

The role of managerial tasks is to gain order and maintain momentum in class. Siedentop (1998) explained that teachers use managerial tasks to gain cooperation of students. Research on the managerial task system has often been conducted with a focus on how these tasks influence the instructional task system. Student misbehaviors have been identified as responses to teacher actions in the managerial and instructional task systems (Supaporn, 2000). Supaporn (2000) explained that a teacher's lack of effectiveness in class management would lead to student misbehavior more frequently.

Fink and Siedentop (1989) explained that the development of rules and routines assists in gaining the cooperation of students. In classes where rules and routines are established there is less demand for the teacher's attention to managerial tasks. This shift in attention allows for the teacher to spend more time focused on instructional tasks.

Researchers (Fink & Siedentop, 1989; Jones 1992) have indicated that the establishment of rules, routines and expectation had an impact on task development. For instance, the level of explicitness of rules, routines and expectations will influence the level of ambiguity and risk students associate with an academic task. Establishing rules and routines allows teachers and students to spend more time on instructional tasks (Fink & Siedentop, 1989). Though the creation and implementation of rules and routines are often considered managerial tasks at this juncture the interdependence of the managerial and instructional task systems is evident.

The interdependence between the instructional and managerial task systems deems it important to include the managerial system in any investigation on a PoA. For example, Doyle (1983) included managerial tasks when he explained that a PoA included the positioning of content, as well as, management within lessons.

The Student Social Task System

The majority of research that examines task systems in physical education foregrounds the instructional and managerial systems. Research has also established that the students social task system has great influence on the instructional task system. One model that has been used by physical education researchers (Hastie, 2000; Hastie & Pickwell, 1996) to examine students' goals in the student social task system is Allen's (1986) students' classroom agenda model. Allen (1986) posited that students have two goals in classes, to socialize and pass the course. To achieve these goals students will try and figure the teacher out, give the teacher what they want, have fun, minimize work requirements, reduce boredom, and stay out of trouble (Allen, 1986). The student social task system also operates in physical education classes.

Siedentop (1988) originally identified the student social task system as operating in a physical education setting. Though few researchers have chosen to examine the student social task system, Hastie and Pickwell (1996) undertook an investigation of the student social system in a physical education dance unit. Utilizing Allen's (1986) model the researchers established that students had similar goals and implemented comparable strategies to those proposed by Allen (1986). This analysis has been complemented by Carlson and Hastie (1997) and Hastie (2000) as they examined the student social system with respect to a sport education curriculum model.

Carlson and Hastie (1996) and Hastie (2000) found that within sport education experiences the student social system actually enhanced or strengthened the instructional and managerial task systems. One proposition that supports this finding is, as students assume more roles that are traditionally associated as teacher responsibilities their actions

are less subversive to the instructional task systems. In this instance, the student social system is "incorporated within the managerial and instructional task systems" (Carlson & Hastie, 1996).

Research on teaching physical education explicitly focused on the student social task system is scarce. Simply stated, the students social task system (the secondary vector initiated by students) can enhance or impede the instructional task system (primary vector initiated by teachers). Most often cited is how the secondary vector subverts the primary vector (Hastie & Pickwell, 1996; Siedentop et al, 1994). In some cases, such as sport education, the secondary vector may work to promote the primary vector. However, a greater understanding of the curricular goals of sport education is necessary to fully interpret whether the student social system actually enhanced the instructional task system.

In summary, a task is the most basic unit of analysis in the ecological paradigm. When multiple tasks and teacher and students' behaviors are involved, they create task systems. Task systems, then, are the collection of instruction, managerial and transitional tasks in their respective categories. The interactions between teachers and students are equally responsible for creation of task systems. One construct that is critical across all task systems is accountability. The following section will examine research findings with respect to accountability.

Accountability

Accountability has been described as paramount in the completion of academic work (Doyle, 1983). The role of accountability in defining academic work is that of directing students' attention to criteria and processes associated with completion of tasks.

Thus, it is accountability that defines the tasks to be accomplished (Doyle, 1983). Tousignant and Siedentop (1983) explained that there are two forms of accountability, formal and informal.

Formal Accountability

Formal accountability is most commonly those evaluative situations where grades are exchanged for performance on tests (written and skills), quizzes, and exams (Tousignant & Siedentop, 1983). The primary formal system of grade exchange in physical education is more often teachers grade on dress, effort and participation rather than skill acquisition and knowledge (Lund, 1992; Matanin & Tannehill, 1994; O'Sullivan & Dyson, 1994).

With respect to formal accountability, physical education teachers develop grades for student performance in the managerial task system. Lund (1992) found that when physical education grades are based on managerial tasks students tend to be more compliant. Student compliance, in this case, does not underscore the importance of formal accountability for instructional tasks. Researchers support that in situations where instructional tasks are accompanied with accountability and grades are related to quality of performance students are more likely to achieve higher gains (Lund, 1992; Silverman, Kulinna, & Crull, 1995).

Informal Accountability

Informal accountability is defined as another strategy whereby teachers can hold students accountable. These situations are more indicative of teacher-student interactions (Tousignant & Siedentop, 1983). A central premise of informal accountability is that

active supervision will positively affect students' on-task behavior and achievement (Lund, 1992; Silverman, Kulinna, & Crull, 1993).

Hastie and Saunders (1990) reported that teacher monitoring (a form of active supervision) kept students engaged with tasks. Conversely, in situations where less monitoring occurred students modified tasks. Other researchers explained that when physical education teachers are monitoring they are primarily concerned with off-task behavior (Siedentop, Doutis, Tsangaridou, & Ward, 1994) and feedback (Silverman, Kulinna, & Crull, 1995).

In summary, researchers have documented that accountability plays an integral role in the development of the classroom/gymnasium ecology. The stronger the system of accountability, the more likely students will cooperate (Romar, 1995). Similarly, the stronger the system of accountability, the more likely teachers will create opportunities that positively affect student engagement and achievement (Lund, 1992). To date, however, current research studies have only examine teacher-centered systems of accountability as opposed to content-embedded models (Hastie & Siedentop, 1999). Rather, Hastie and Siedentop (1999) explained, "work that eventually gets done in classes depends upon the strength of the program of action." (p 21). A program of action may be more closely related to content-embedded accountability.

Content-Embedded Accountability

To date the construct of content-embedded accountability has not been in the forefront of much research on teaching physical education. Hastie (2000) introduced content-embedded accountability as a third vector that interacts with the primary vector created by the teacher and the secondary vector created by students. The notion of

content-embedded accountability is different than traditional conceptions of teacher-centered forms of accountability in that it involves accountability with respect to demands intrinsic to the tasks and the learning contexts as they are positioned and sequenced in the unit or lesson (Doyle, 1983). Thus, the teacher still plays a role in the development of accountability but the role has shifted from enacting sanctions to sequencing content embedded in learning contexts that provide instructional cues, as well as, environmental conditions that stimulate students to assess past experiences.

Doyle (1983) espoused the notion that an analysis of tasks offers a "promising approach to understand how teaching effects occur in the classroom" (p 162). He elaborated on this belief in stating, "examining tasks that students are working on gives access to the kinds of cognitive processes that are ... necessary to accomplish the tasks." (p 162). Noteworthy is his further explanation that the concept of tasks is broader than content and information processing. It also involves environmental conditions. He introduced the involvement of environmental conditions as "content embedded" in learning situations. Thus, content-embedded accountability is the progressive sequencing of tasks with an explicit focus on the environmental condition in which students will engage in subject matter.

An example of this type of accountability is when Doyle (1983) describes a student's cognitive processes as "gradually building a model" (p 166). More specifically he explained that "information from the environment (present experience in the form of task engagement) makes contact with information from the semantic memory (past experience)" (p 166) and this interaction is what students use to interpret and develop

thoughts and actions. It is at this juncture that students' past experiences play a role in the development of the learning ecology.

In the development of content-embedded accountability or the third vector within a Sport Education unit students where given more responsibility. Hastie's (2000) hypothesis was that the greater student responsibility contributed to the flourishing content-embedded accountability. Hastie's (2000) analysis noted in this instance, games were taken more seriously and the student social task system was not initiated to subvert instruction. This study (Hastie, 2000) provides an initial glimpse at the importance of content-embedded accountability. More research however, needs to focus on a program of action and content-embedded accountability within other process oriented approaches. The concept of content-embedded accountability has more to do with a program of action as the primary concern is that of positioning and sequence of tasks. More research with an explicit focus on content-embedded accountability needs to be undertaken in those instructional contexts where a strong program of action is evident.

Research on the classroom/gymnasium ecology has provided a solid description of tasks and task systems that are created through the bi-directional processes of students and teachers. Recently, research efforts have examined the student social system as an integral part of accomplishing instructional tasks (Carlson & Hastie, 1997). These investigations, however, were delimited with respect to examining only the relationship between teachers and students as these behaviors related to the development of the student social task system. The ecology also includes tasks and the environmental conditions that create content-embedded accountability. Future research on the ecology should include an emphasis on the content and learning context as it relates to the bi-

directional process between teachers and students. It is this approach that will focus on how interactions between teachers, students, and tasks influence learning.

The research on teaching physical education has definitively described tasks, task systems and the associated teacher and student interactions. Researchers are beginning to show an interest in how these relationships unfold, while including a focus on student learning processes. One starting point for investigating learning in the ecology is the inclusion of constructs, such as a program of action and content-embedded accountability. These two constructs have been cited in early research on the teaching and learning ecology and were presented as valuable to begin to understand how students cognitively engage in tasks (Doyle, 1983). The next step is to investigate instructional models and examine the role of content-embedded accountability in developing a strong program of action.

Summary

The purpose of this review was to examine the research and literature from two distinct areas, adventure education and the ecological perspective on teaching and learning in physical education. Research on the teaching and learning ecology in physical education has portrayed complexities as teacher and students interact. More specifically, tasks have been described, teacher and student relationships have been assessed, and teacher-centered forms of accountability have been cited as critical. A broadening research focus is growing which would include a program of action and content-embedded accountability as constructs that position student learning in the forefront of the ecology.

Rink (2001) explained the importance of examining inherent assumptions of pedagogy. More specifically she described, "the direct lines...between learning theory and student learning and between teaching and learning are mostly not out there." (p 124). A program of action and content-embedded accountability are two constructs that could help assist in better understanding how learning happens as teachers and students interact in the ecology.

A program of action is the positioning and sequencing of content and management across lessons. Important to recognize is that a program of action can be strong creating harmony between teacher and students or weak resulting in ambiguity in the learning environment. While there have been few instances in physical education or adventure education literature specifically focused on the development of a program of action, one can hypothesize about the issues of sequencing creating harmony in learning. If positioning and sequencing of tasks represents how content and management are progressively engaged by students, then, how a specific instructional model espouses structures that assist teachers in making these pedagogical decisions can offer insight into the development of a strong program of action.

While a program of action is a broad representation of multiple tasks as they are sequenced across lessons, content-embedded accountability is an ecological construct that has more to do with the design of tasks included in a program of action. In this instance examining content-embedded accountability moves in a direction of examining how tasks included environmental conditions that stimulate student actions and thinking while allowing them to integrate past experience to generate new knowledge or schema. A program of action and content-embedded accountability, then, are two constructs that

could allow a researcher to investigate learning at the unit and lesson levels in an instructional model.

CHAPTER 3

METHODS

INTRODUCTION

The purpose of this qualitative case study was to examine the ecology of an adventure education unit in a physical education program. This study included the learning ecology that is created throughout the unit and the role of an instructional model in creating the learning ecology. To conduct this research investigation I used field observations, formal interviews, informal conversations, and documents to describe and synthesize the relationships and interactions among the teacher, students and tasks within the adventure education unit.

The purpose of this chapter is to justify the use of specific research methods and describe how data were collected. I also explain (a) research genre (b) site and participant selection (c) data collection strategies, (d) data analysis, (e) establishment of trustworthiness, and (f) researcher bias.

Case Study Design

A case study is designed to examine a specific event or program in great detail and illuminate the reader's insight to the phenomenon or complexities in that particular situation (Merriam, 1998; Stake, 1995). A case study is often used in research where questions focus on a complex integrated system, examine an event within a finite amount of time (Miles & Huberman, 1994), and define the special nature of the program or event to be examined (Stake, 1995).

Stake (1995) explained that the case study design has a distinct advantage in answering the "how" and "why" questions. While Hastie (1995) described a robust

ecology and potentially strong program of action in adventure education, less attention has been given to "how" or "why" this strong program of action existed.

Metzler (2005) explained that research on instructional models should be sensitive to the distinctness of each model and provide, "a rich and varied base of evidence to analyze a model from many perspectives." (p190). Understanding "how" and "why" a strong program of action is created during an adventure education unit is a step to better understanding the role of experience in the learning ecology and furthers research on instructional models. The case study design, therefore, was an appropriate research design for my study.

School Site Selection

Site selection is a critical step in case study research. For the purposes of this research investigation there were critical features that needed to be met to answer the research questions. First, the site was implementing an adventure education unit. Second, the physical education teacher had training or a background in the specifics and subtleties of facilitating an adventure learning experience. Metzler (in press) explained that in models-based research the researcher must know that the teacher is implementing the model with some level of trustworthiness that is true to the intended model. Assuring these criteria in site selection allowed me to view a physical education teacher facilitating an adventure education unit with some level of model integrity.

To find a potential site I contacted professionals in the adventure education and physical education areas. Most recently there were four school districts in the Northeast that received a PEP grant to improve their physical education programs. One specific component of program improvement included developing and implementing an adventure

education unit. I contacted one of the schools within this collaborative improvement project and asked for permission to join a teacher and her class during an adventure education unit. Finally, the choice to work with this teacher who had been part of this PEP grant was also purposeful as part of the improvement grant was extensive professional development within the adventure education model.

Participants

Informed consent and human subject approval (See Appendix A) were obtained from all participants. Participants included in this investigation were physical education teacher Ivana Team (pseudonym) and the students in her physical education class (N=19). Ivana has been a physical education teacher for 23 years at a large middle school (N= 468) in the Northeast. Colleagues described Ivana as a committed physical education specialist who is an exceptional teacher. A past student teacher that had worked with her said she was a great mentor in helping him become a better teacher.

After receiving numerous suggestions to work with Ivana, I set a meeting to observe her teach. Ivana demonstrated a keen awareness and connection with her students. It was clear that there were expectations for learning in her class as she challenged students to engage in both physical tasks and discussions. Assessment was evident as Ivana asked numerous questions during processing that were focused on group dynamics.

Ivana is a respected teacher in her school system and is an active member in professional organizations. She engages in professional development workshops and attends conventions, yearly, at the state, district and national levels. Most recently, she has been involved in a professional development program specifically focused on

adventure education. Ivana and the staff at Will E. Climb Middle School (pseudonym) had just completed an extensive professional training in adventure education. Included in this training was an introduction to group development, adventure team-building activities, sequencing activities, the use of facilitation as an instructional method and processing skills. Ivana spoke about the quality of the training and how it really helped her understand how to teach adventure education.

As part of the PEP grant there were considerable changes to the entire physical education program at Will E. Climb Middle School. The inclusion of adventure education was one of the changes to the program. Ivana and the faculty also developed or were continuing to develop units in outdoor activities and fitness. With respect to fitness, considerable attention had been given to purchasing equipment and creating a fitness room.

Technology had also been introduced to the program on a large scale. The faculty had been trained on using computers and palm pilots as a tool to manage data on student performance. At the time of this investigation some of the units included assessments that were integrated with the use of this technology. The adventure unit had not been integrated with the technology.

The physical education program at Will E. Climb Middle School is well established. There are four physical education specialists and one health educator. Class sizes are average (15-25) and facilities are adequate. Indoor facilities included a gymnasium and pool. Outdoor facilities included tennis courts, ample open space and hiking trails.

Ivana shared information about the adventure units and presented a block plan for 6th, 7th and 8th grades. It was obvious there was a curricular scope across grade levels as well as instructional sequencing within each grade. For example, 6th, 7th and 8th grade adventure education units are differentiated in curricular scope by unit foci such as general team building/group process, problem solving and leadership, respectively. Respective to instructional sequencing within grade level activities progressed, based on activity classifications and group development theory.

The students in this particular physical education class were in the 8th grade. The inclusion of these students were of particular interest to the study due to their background in adventure education and because they are a typical representation of a physical education class. Respective to the students' background in adventure education, these students were more familiar with terms, routines and rules in physical education. The students had participated in another pilot adventure education unit last year as part of the PEP grant.

At the time of the research investigation Will E. Climb Middle School was only teaching one unit of adventure education. This was the unit that I observed. I chose to work with this group for two reasons. First, Ivana was excited to have this 8th grade class work in the project as she explained that it is very representative of the type of student groups that she has at Will E. Climb Middle School. Second, 8th grade groups at this school had been involved in a prior adventure education unit (though different activities and unit foci) and have had more exposure to language, tasks, routines and assessments. It is this second reason that truly justifies my selection of this group. In focus group interviews these students were able to more specifically articulate their thoughts and

ideas. For example, the students had a better developed understanding and language to discuss activities. The students also had more experience with processing which could potentially allow them to be more comfortable in these situations.

DATA COLLECTION

Data were collected throughout the entire adventure education unit (3 weeks). The adventure education unit was comprised of eight class sessions. Data were collected from five sources: (a) descriptive field notes, (b) observations (c) formal interviews with the physical education teacher, (d) two focus group interviews with three groups of students (2 N=6 and 1 N=7 per group), and (e) informal conversations with the physical education teacher and the students.

Observations

Descriptive Field Notes

The purpose of descriptive written field notes is to create a detailed account of observed events in the classes, teacher behaviors, student behaviors, task descriptions, and systems of accountability. My role in this research project is one of observer. While Ivana was teaching I remained a passive observer. In this position I was able to see and hear Ivana and all of the students.

Field notes were written during the teaching of the lessons. I formatted my notes on pages with two columns. The left column was for noting events, tasks, behaviors and dialog. The right column was for my thoughts when watching events unfold or for questions that arrose while I was observing. All written field notes were typed in Word 6.0 at the conclusion of each observation day.

The global focus of field notes was to emphasize the development of the program of action, however, a higher level of specificity was placed on Ivana's teaching, student engagement, accountability, task design, task development and sequencing. All observations were informed and recorded utilizing the ecological framework and adventure education instructional model. I also tried to remain open to capture the "natural" process that evolves in the creation of the learning ecology. For instance, a PoA has to do with positioning and sequencing of content within and across lessons (Seidentop & Hastie, 1999) and this construct helped direct my attention to specific behaviors in a lesson and begin to examine the relationships among early lesson tasks and tasks presented later in the lesson. There were, however, events and comments that directed my attention beyond the day-to-day events that dramatically influenced the developing PoA. An example of an event not purely day-to-day was Ivana's positioning and sequencing of content at the school and student levels.

Interviews

Formal interviews and informal conversations were conducted with the participants. The purpose of the interviews and conversations was to collect data about the PoA and content-embedded accountability in an adventure education unit.

Formal Interviews

The semi-structured interview format is a flexible interview process guided by structured questions designed by the researcher. During the interview process, however, participants offered information outside the scope of designed question. The semi-structured approach allowed the researcher and participant(s) to explore relevant topics respective to the more global interview foci.

A semi-structured interview format was used during all formal interviews. Ivana participated in three formal interviews throughout the adventure education unit (see Appendix B). The interviews included the following foci: (a) background using the instructional model of adventure education, (b) reflections on the adventure education unit and (c) content-embedded accountability.

Formal interviews with the teacher were between 60-90 minutes in length. All formal interviews were audio recorded and transcribed verbatim. The first interview was conducted at the conclusion of the first class in the adventure education unit; the second interview was conducted at the halfway point in the unit; and the third interview took place at the conclusion of the unit.

Two focus group interviews with three groups (N=3) of students (2 N=6 and 1 N=7 per group) were 30-45 minutes in length. All students participated in two focus group interviews. In the original design of the investigation, students were to be randomly assigned to three groups of five. I chose to include all of the students in the focus group format rather than exclude any from the process. All students expressed an interest in having a chance to participate in the interviews. The first interview was conducted 1/3 of the way into the unit and the second interview took place at the conclusion of adventure education unit. Focus group interviews were used to lessen student anxiety about meeting with the researcher. Allowing students to interview in groups led to a more complete picture, as they were able to scaffold responses.

Informal conversations

Informal conversations are those instances when the researcher and the participants discuss the events and happenings in prior classes. These instances occurred

before or after class or at other times the researcher was at the school. Informal conversations were often prompted by the participants, thus information presented was important to the participant and served as an opportunity for the researcher to clarify observations and build rapport with the participants.

Though I did not audio record any informal conversations, once any were concluded I tried to immediately write down a memo that was treated similarly to observation data. Written informal conversation memos were typed in Word 6.0 and included with observation data during analysis.

Document Data

Document data were collected in the forms of plans, block plans, professional development information, assessments, and other artifacts used for the adventure education unit. Document data were used to validate observations and interview data. It also supported the process of verifying the integrity of the implementation of the adventure education instructional model.

ANALYSIS OF DATA

In qualitative research, data collection and analysis inform and enhance one another (Merriam, 1998). As data are collected the researcher begins to analyze data, which assists in the refinement of data collection procedures. Once all data are collected, more formal data analysis techniques are implemented. The following section will describe the data analysis procedures that were conducted in this study.

All data analysis had an explicit intent to describe events in the adventure education unit and provide details respective to context and relationships among events. Field notes and interview data were inductively coded through a method of constant

comparison (Strauss & Corbin, 1998). Initial open codes were created to provide descriptions of events in the adventure education unit. Axial codes were then created, as the researcher examined relationships between open codes. Axial codes were a step beyond description and included a level of interpretation that was informed by the literature.

During the coding process emphasis was on fully describing the adventure education unit respective to the major structures within an instructional model (open codes) and examining the relationship among phenomena respective to the creation of a PoA (axial codes). In the process of open coding the researcher examined the teacher's behaviors respective to content development and delivery and the students' interactions as they engage in activities and tasks. Open coding relied on established adventure education models such as The Macro and Micro Sequencing Model (Bisson, 1998) and activity classifications (goal setting, icebreakers, deinhibitizers, trust activities and group initiatives). The axial coding process, however, was built on the open codes and examined the relationships among teacher action, activity/task design and student actions. Axial coding relied on established constructs from the ecological perspective (PoA and content-embedded accountability).

Trustworthiness

In most qualitative research the onus to ensure credibility and trustworthiness is one of the researcher's responsibilities. Lincoln and Guba (1990) suggested prolonged engagement, triangulation, member checks, research memos and a critical friend as methods to create trustworthiness.

Prolonged engagement

An adventure education unit has a distinct beginning and end. In this instance, prolonged engagement represents building a rapport with the teacher and students prior to the unit and following the unit of instruction that included all classes. Understandably, it takes time for the researcher to build a level of trust with the participants. For this reason, I was involved with Ivana and her students prior to data collection to build rapport before the adventure education unit begins at the school. I went to the school and met with the teacher prior to the beginning of the unit. This initial meeting began a rapport building process and allowed us to detail the purpose of our work together. I was also introduced to the students by Ivana as a visiting physical education teacher who was interested in learning more about adventure education and how it works. Ivana and I explained to the students that they would be involved in a research project that would eventually help teachers better understand how to teach adventure. The students were fully informed and their parents signed consent waivers, however, they were excited to have their voices be part of shaping the future for their physical education program and help future physical education teachers. Finally, I attended all of the physical education classes that were part of the adventure education unit.

Triangulation

Triangulation is a process of examining data from multiple perspectives. In an effort to implement the triangulation process I met with both the teacher and students throughout the unit. Another source in triangulation was the multiple data sources, such as interviews and observations. Observations provided a system to examine interview data, while interview data assisted in interpreting observations. The third point for

creating triangulation was documents. Document data were used to verify and validate interview and observation data. There were few documents that had been created; ie, assessments, lesson plans. The most valuable document was the block plan.

Member Checks

Sharing information (data) with research participants is a form of member check (Lincoln & Guba, 1990). The purpose of a member check is to provide another method of creating credibility in the research process. Member checks involve sharing interview transcriptions, findings and results with other members involved in the research. In this instance Ivana provided perspective to the researcher on various steps in the data collection and analysis process. My process of member checking included meeting with Ivana. At these meetings I presented initial codes and relationships that I built as a result of data analysis. In these member check meetings I also asked Ivana to help me clarify and better understand the information in the transcriptions. In these member check meetings I asked and encouraged Ivana to be involved with clarifying so I could better represent and fully understand her point of view respective to the complexities in this context.

Research Memos

Throughout this investigation I kept research memos as a means to reflect on my personal perspective and research processes. The use of research memos in qualitative investigations was an attempt to allow me to gain personal perspective on biases that were part of my past experiences. The memos also allowed me to document the procedures and processes throughout the entire process and reflect on questions and decisions that influenced the outcome of the study. I used Ethnograph 5.0 and kept

memos in the software package. This approach allowed me to go between data and memos with ease.

Critical Friend

Throughout the data analysis process I worked with a critical friend to test and check my understanding of how I represented data analysis and results. I selected an individual who has a background and expertise in adventure education and experiential learning. The instructional model expert that I used was Michael Boulden. Mike is the director of a year-round outdoor center and has 8 years of experience in the adventure education area. In this capacity he facilitates groups in adventure learning experiences and works with undergraduates in their preparation to be adventure educators.

Mike and I spend a considerable amount of time together. We eat lunch together at least twice a week and see each other at the outdoor center because of my teaching schedule. In these instances, Mike and I would discuss my data collection. More specifically, I would explain what I was seeing Ivana and the students do during the lessons. The discussions evolved in a manner where I was describing the details of my themes. Mike's role in all of this was to question my process of creation of the themes. He would challenge me to explain if I thought I had the data to support my themes. This was difficult for him as he was less involved in the physical education literature. However, Mike was very helpful in validating Ivana's integrity of model implementation, her use of quality processing questions and student actions as they engaged the adventure education activities.

Researcher Bias

In qualitative research data analysis is heavily influenced by the researcher's past experiences and personal connection with the research topic. It is important for the researcher to fully understand their influence throughout the research process and to provide readers with a full disclosure of their biases. As the primary researcher in this investigation then, it was important for me to detail my potential biases respective to this investigation.

First, I have worked in the area of adventure education from 1991-2004. In this time I have facilitated many adventure education experiences. I have also provided numerous school systems with professional development programs focused on designing, implementing and assessing adventure education models within their curricula. My global research question(s), "Why and/or how does adventure education work in physical education?" has been a personal journey as much as a professional question.

Second, adventure and the role of experience in the learning process have been critical aspects in my professional development and learning. When I reflect on the majority of those instances in my life when I learned "the most" I can find direct experience and a sense of adventure as the two environmental conditions that helped me stay on task and maintain a desire to excel. At some level, then, this investigation was an opportunity for me to better understand myself as a learner, researcher and potentially a teacher.

Finally, researchers of teaching and learning have deconstructed the classroom and examined the most finite variables to better understand how teaching and learning evolves. Conversely, many adventure education professionals are resigned to describe the

teaching and learning process in this context as mystical. As an adventure education advocate I have always been troubled by this dichotomy. My intent with this research, then, was to examine the parts (structures within the instructional model) while remaining true to the whole (a PoA). My attempt to recognize these biases throughout the research process was to have Mike Boulden, my critical friend, challenges my process of data analysis and how past past experiences informed this process.

CHAPTER 4

RESULTS

A program of action (PoA) is an action plan to position and sequence content and management within and across unit lessons. Positioning and sequencing content and management is frequently thought of as purely teacher-directed work. In such an analysis students' roles are often described as submissively working in the primary teacher-defined vector or described using language to capture subversive attempts to operate in a secondary student-directed vector.

The major finding in this study was that the PoA was created through the teacher and students engaging in a combined and complex social process. In this study the developing PoA was not solely influenced by a teacher-directed vector. Similarly, students did not initiate a subversive student-directed vector to meet their personal and social needs. In this investigation positive relationships developed between the teacher and students, respective to content, teaching, and accountability.

The results from this study are presented as themes: a) we're on the same page, b) teaching is about students, it's not about me, and c) sometimes I'm learning and I don't even know it. The first theme, we're on the same page, will explain and detail how Ivana (the physical education teacher) and her eighth grade students defined content in adventure education. The similarities in their content definitions created a synergy among the content, teaching (teacher) and learning (students).

The second theme, teaching is about students, it's not about me, will detail Ivana's instructional role, which was to allow students to engage in an experiential learning process. Ivana believed teaching was about experiential learning. Her instructional goals

were to, a) position and sequence learning activities (i.e., direct experience with AE content), b) empower students to be more responsible for their learning by stepping back and observing students' group/learning process and actions during activities, and c) facilitate student reflection as the primary form of accountability (i.e., formative assessment). Ivana's instructional decisions positioned students at the center of the teaching and learning process and her students fully accepted this responsibility.

The third theme, sometimes I'm learning and I don't even know it, describes Ivana's assessment of student learning and the overall system of accountability. Ivana used processing (i.e., questions and discussion) as the dominant form of assessment. Processing created a significant role for students in shaping the system of accountability. Embedded content structures in various activities, however, defined the system of accountability, allowed Ivana and her students to develop relationships regarding assessment that emboldened the PoA, and solidified an alignment among content, teaching and accountability.

WE'RE ON THE SAME PAGE

A PoA assists teachers and students in defining rules for social participation and what constitutes academic work. Content in the most fundamental form is subject-matter to be learned by students. Specifically content can be conceived as knowledge, skills, and values to be experienced and mastered as a result of student involvement in a learning experience. Results of this study support the notion that the teacher, Ivana, and her eighth grade students had a synergy regarding the content to be taught and learned in this adventure education (AE) unit. Developing content synergy in this AE unit hinged on

Ivana's ability to shape content goals and the students' process of defining content goals through engagement in tasks.

Ivana's content goals were shaped through the defined school outcome of civility and structures within the AE model for experiential learning. Student definitions of content goals were shaped through their engagement in AE activities and their ability to make connections to applied contexts. Finally, Ivana and her students never explicitly addressed content goals during the lessons. Their descriptions of content goals, however, were united and created a synergy that allowed them to build relationships respective to teaching and learning, as well as, assessment and accountability. Thus, developing a synergy regarding AE content goals was Ivana's and her students' first step in developing a PoA.

Ivana's Adventure Education Content: Civility and Experiential Learning

In an early interview, Ivana expressed the importance of civility as a school-based outcome. She explained that Will E. Climb Middle School had established character development and student civility as a primary school goal. Ivana believed that there was a natural link between physical education and the school's civility goal. Ivana thought that physical education, a performance-based discipline, was an appropriate class in the school to teach civility. She stated, "All of the things incorporated into adventure education, trust and being nice to one another really fits." She elaborated on her goals for her students,

> I hope that what they [students] learn in here [physical education] is going to carry over to them walking in the hallways and being nice to other people, picking up peoples binders when they fall on the floor, instead of laughing at them. In here

[physical education] I think that it would be that they don't pair up with the same people all of the time and they learn to trust everybody in the group.

Ivana consistently associated the AE unit content goals with the school's civility outcome. Throughout interviews Ivana connected the civility outcome with the students' experiences in this unit. Ivana further connected the students' experiences to "real" situations such as with civility. She detailed the school outcome of students acting civilly as a critical goal for her and the students in this adventure education unit. Ivana's ability to make a connection to the broader school outcome for civility was a crucial variable in uniting her goals for what she would teach and the students' goals for what they learned. The critical nature of this connection to the broader school goal became evident during early interviews.

As the researcher, I purposefully designed early interview questions as to not specifically focus on content, teaching or assessment. Instead, the intention of initial interview questions was to allow Ivana the flexibility to select topics important to her shaping a plan for the AE unit. She chose to begin with helping students make the connection to the broader school outcome of civility. For example, the first question asked in interview #1 was, "Why did you choose to teach adventure education in your curriculum?" Ivana responded, "It makes sense. It fits with the school's outcome for civility." Similarly, field notes from the first lesson observation detailed how Ivana began the unit by reviewing the global philosophy of Challenge by Choice, Be Safe, Be Honest, Be Respectful, Be Here. These broad descriptors of AE content were presented in early lessons as boundaries for students as they would shape their conceptions of AE content and had a direct link to civility. Ivana chose to begin the unit by introducing these

concepts. Ivana initially discussed the school outcome and defined the content boundaries of Challenge by Choice. She further defined AE content as her intentions for students to engage in an experiential learning process.

In the initial interview, Ivana shared what she taught in the adventure education lessons. She explained that she had two primary goals to design activities that are developmentally appropriate and and to design opportunities to process with students. First, she described the position of activities across lessons based on types of activities and respective group development of students. Second, she shared her commitment and thoughts on her capacity to ask questions during processing in order for students to make connections between their actions during learning experiences and real life scenarios.

Throughout the past eight academic years Ivana had used a form of adventure education. She had attended numerous workshops at regional and national conventions that focused on adventure education. Recently, she had been involved in a more intense teacher development opportunity with AE through a PEP grant. For Ivana, workshops and extensive teacher development opportunities moved her beyond an introductory level of understanding this content (content development) including the intended student learning process (experiential learning).

Ivana explained that, "…. being familiar with more activities is advantageous for me, but I think knowing the activities and specifically how to use them in debriefing, what do we want them [students] to find out, what was the activity for and how do they [students] realize what happened." This quote from Ivana captures her beliefs that adventure activities and games are important learning experiences in adventure education. Ivana defined adventure activities as the impetus for students to realize AE content goals

such as, the students' ability to analyze their process during activities and students making application to a broader personal context. Both of these content goals are well aligned with structures in adventure education.

Field note observations and interview data support Ivana's high level of integrity among her general pedagogical skills (e.g., framing the adventure activity and processing post activity), knowledge of the guiding principles, and content goals in adventure education. Ivana portrayed a sense of confidence in her ability to identify activities that allowed students to engage in the content goals that adventure education offers. For example, it was noted in field notes that Ivana explained she could group activities such as icebreakers, trust or problem solving to teach for specific AE content at respective group developmental levels. Ivana explained, we start out with all groups, with some sort of name games, they don't really know everybody. She further described, I look at the group and see if they are past the icebreakers. She added, if that's good [students at the beginning stages of group development] then we can move on, to start into some problem solving things [activities]. Ivana recognized that these activities were used at different points in her unit based on the individual students and the group's capacity to take responsibility for their own learning.

Ivana was less confident in her ability to ask processing questions to help students make meaning of the AE activity and content. Ivana expressed a level of humility regarding her questioning skills. In an early informal interview Ivana reflected on her need to "improve" her processing skills. She expressed concern in her ability to help students "make the connections" beyond the activities.

Results from field note observations showed a different picture of Ivana's capability to ask questions that engaged students. For example, all questions posed to individuals and small groups focused on observed student actions (e.g. asking for help from other students or defining roles in group process). The following field notes show a typical exchange between Ivana and her students. This detailed exchange takes place after the "In Plain Sight" activity during the sixth lesson.

> Ivana: Where did you expect to find it [a pen that was hidden in plain sight inside a circle]?
>
> Student: On the floor mixed in with the stuff [distractors].
>
> Ivana: Where was it this last time?
>
> Students (3): In her [one of the students] hair (3 students stated some variation of this staement).
>
> Ivana: How did you help other students?
>
> Students (2): Looked toward the pen (student #1), Went and stood on the side of the circle where the pen was (student #2).
>
> Ivana: How can you get more information when you are problem solving?
>
> Student: Watch what other people are doing.

This passage represents how Ivana's questions were directed by the students' action during the activity. Her initial questions began asking students to reflect directly on their actions during the activity. Ivana's questions, then, progressed to challenge students to examine how they helped one another during the activity. Finally, she concluded with inquiring about students gaining insight and perspective during problem solving.

This type of sequence in processing is well established in the AE model and would be expected in later lessons such as this data point (lesson #6). Based on a comparison of Ivana's interview responses and field notes regarding her questions during lessons you could describe a creative tension between her confidence in content identification as well as teaching methods and her humility with respect to asking processing questions as a means to further student learning. Noteworthy is that when asked about what she taught in AE she chose to speak about sequencing activities based on students' actions during activities and her capacity to help them engage in an experiential learning process.

Ivana began developing her plan for the AE unit by thinking about the school outcome for civility. She continued to define her content goals through her assessment of her abilities to have students engage in an experiential learning process (sequencing activities based on group development, students engaging in AE activities, and facilitating student reflection). Data supports on one hand Ivana was not direct with her responses about AE content to be taught in specific lessons. For example, she did not create a list of AE content areas and associated skills, such as communication, trust and problem solving (e.g., she did not have detailed lesson plans). Ivana relied on describing the sequence of AE activities and how these would direct students' attention to content goals. She was, on the other hand, direct in defining the learning process in which she hoped her students would engage. For example, she described embedded content in activities (e.g., icebreakers and problem solving activities) that would serve as direct experience for the students with the global content of civility and, then, discussed her capacity to help students engage the AE content through reflection. Thus, Ivana's learning goals regarding

knowledge, skills, and values is best defined as the students' process to move toward the outcome for civility. This process oriented definition of content goals left flexibility for students to be involved in shaping subject-matter in meaningful ways as they engaged the AE activities and examined their group and learning processes.

Ivana explained, "I love teaching adventure. It's a time when you can try to get the kids to work on their own and develop a level of self-responsibility." Ivana believed that the knowledge, skills, and values in adventure education were linked to the school outcome of civility and her intentions for student to engage in an experiential learning process. Ivana partially shaped her definition of AE content through her understanding of the school outcome for civility. Ivana continued to develop the AE content through her understanding of positioning and sequencing AE activities based on students and group developmental levels. She finalized her definition of AE content through a lens of experiential learning, which she thought would move students toward the outcome for civility.

Students' Views About Content

The students had a range of views of content they learned in the AE unit. Analysis of focus group interview transcripts supports that students' views of AE content were similar to Ivana's definition of AE content. Students described how they were learning to work civilly and were articulate regarding the experiential learning process in which they engaged. Caryn, an eighth grade student, described, "It's good when we accomplish the activity, the goal, but it is good even if we didn't accomplish it if we worked together well and tried." Jake echoed this comment and further explained. He stated, "You are learning a lot of skills to be able to work in society and be more social. This [adventure

education] is nice to prepare us for the rest of our life if we are working in a job, to cooperate with other people."

Caryn's and Jake's comments reflected the students' recognition of group process. Group process for these students was important AE content if they were to be prepared to eventually, work in society. Tucker captured the AE content of group process, "Yeah, for me, instead of like soccer where someone might hog the ball and go all the way up the field and ruin it, in this [adventure education] everyone is working together [civil relationships]."

Students also had conceptions of AE content they learned that focused on skills that are associated with civility. Tucker discussed conflict resolution, "If we [students] don't argue and waste time, you know, we [students] get things done". Tucker recognized that he had a responsibility to manage conflicts and how efficiently the group worked together on problem solving activities. Kim agreed with Tucker and explained further about the AE content of problem solving. Kim stated, "Problem solving is important because you will use it later in life." Kim further detailed how she thought a group could manage their process when solving a problem, she said, "You could split into two smaller groups and try different ways and, then, try to combine them [the smaller group ideas]."

Students in this AE unit were cognizant of AE content and skills associated with civility. They were articulate with their thoughts regarding skills they were learning. These students were also able to see a broader connection and could make application to their ideas of future real life situations. These students' comments portray conceptions of AE content they learned included a focus of the broader school outcome of civility. The student comments about conceptions were partially similar to Ivana's definition of AE

content she would teach. Ivana, however, also included her intentions for students to engage in experiential learning as part of her definition of AE content.

Students expressed not only what they learned but also included a focus on how they learned in the AE unit. For example, in one focus group interview the researcher asked, "What do you think Coach Ivana wants you to learn in adventure?" Pete responded,

> Well, she kind of gives us a challenge to do and tries to just let us figure it out and if we don't, she just doesn't, just doesn't necessarily give us the answer. She'll tell us to think about it, think about other ways to do it. So, it's really more up to us and we realize if we were respectful and cooperative and safe.

Pete's comment reflected his belief that he valued Ivana's role in instruction and that AE content was about the process he engaged while learning to be respectful of other students, cooperative and safe. Later in the interview he described, "You get to be sort of a teacher too. Like you can choose to come together and you are not being told [by Ivana] how to do this or to do this now in this way." Pete's reflections on AE content he learned included an emphasis on his role and responsibilities for learning in the AE unit. Again, students were articulate about AE content they learned. In this instance, Pete explained that he engaged in what is described as an experiential learning.

Ivana and her students provided similar descriptions of AE content they taught and learned, respectively. Their beliefs and definitions of AE content were synergistic. A final comparison of quotes from separate interviews with Ivana and the students captures the nature of content synergy.

> Ivana stated, I think it would be great if they don't pair up with the same people all of the time and they learn to trust everybody that's in the group.
>
> Henry [an eighth grade student] stated, It's cool how she split us up. She would be like find a partner and then she would be like find a partner and so we would be working with people that weren't necessarily our friends and so it was helpful to like learn how to like work with other people.

Observation data supported that Ivana did create situations where students could choose partners. Ivana intentionally used AE activities that demanded students worked with various students, new partners or in small groups. The students had a definitive role in shaping AE content goals that were personally meaningful. Ivana and her students developed a synergy respective to AE content regarding what she taught and what they learned. It was student participation in AE activities that eventually allowed Ivana and her students to create content synergy.

Ivana never explicitly stated the content to be learned in the AE unit nor did she provide students detailed lesson objectives. The only resemblance of making content public was when Ivana stated the four cornerstones in the adventure education unit, Be Safe, Be Honest, Be Respectful and Be Here.

Ivana did not announce daily learning objectives; she simply began class (field note observations). For example, in a typical AE unit class students entered the gymnasium, briefly socialize and, then, Ivana would quickly have students engage in an activity. Field note observations indicated that Ivana's first words were usually, "All right are we ready to begin" and she would then frame the first activity. Ivana's routine of

beginning with an AE activity allowed students to experience AE content [civility and experiential learning] through the activities.

Overall, Ivana and her students developed a synergy in this AE unit. Ivana made a commitment to link the AE experiences to the broader school outcome of civility. She further defined the AE content through her understanding of the experiential learning processes she intended her students to engage. Her students' participation in the AE activities, physically (i.e., doing and negotiating the activities) and socially (i.e., verbal exchanges and group process) helped create this positive synergy.

TEACHING IS ABOUT STUDENTS, IT'S NOT ABOUT ME

As a teacher Ivana believed that students should be at the center of the learning activities in her classroom. Ivana explained, "I just do what I am supposed to do. That's what I am supposed to do, think of them [students]. It's not about me." Ivana's teaching was about creating learning experiences that would directly engage students with the broader content goals of civility and self-responsibility.

As a facilitator she had two main instructional goals. First, she described her intentions to position and sequence AE activities [tasks] that would serve as environmental conditions to guide student learning. Second, she explained that she would facilitate experiential learning to empower students to become more self-responsible. Globally, Ivana's definition of teaching in this AE unit could be described as a desire to have students engage in experiential learning. The subcategories for this theme are positioning and sequencing learning activities [tasks] and teaching with a facilitation approach.

Positioning and sequencing learning activities

Though Ivana never directly used the phrase "experiential learning", analysis from field note observations showed that all lessons were project-based and student-centered. Ivana selected activities that were opportunities for students to directly engage skills associated with the broader AE content of civility and self-responsibility.

In Lesson 3 Ivana gathered students to introduce the Play Dough Pictionary activity. This activity is a challenging communication exercise where speech is limited and students examine how information is transmitted to others in various forms. When framing this activity Ivana explained to her students they would form four groups, they would go to different locations in the gym with their play dough and each student in the group would come to her to be told an object to make with their play dough. Once returning to their groups, within a limited amount of time, the student would make the object with the play dough and the rest of the group would try and guess what this person had just sculpted. On a superficial level one could challenge the use of this activity as adventure education. Simply, where is the adventure? However, content in adventure education is considered to be interpersonal and intrapersonal development. The embedded skill of communication in this activity can be considered part of interpersonal development.

Ivana never explicitly stated that the goal was for students to work on communication (field note observations). Instead, students engaged in the learning experience of communicating. After the activity Ivana focused questions on communication (e.g., how many correct sculptures were they able to identify, how was this information received by others and how will these skills relate to real life situations).

Initial student responses were playful. When asked about the number of correct responses, the group joked about some students' ability or lack of ability to sculpt. As the discussion progressed, students were able to provide insight into the difficulties in trying to get someone to "get it" especially if they have limited sculpting abilities. Field note observations further supported that Ivana finished the debriefing by asking about real world instances. She inquired, Are there times, even when someone can talk, you don't understand what that person is saying? Students did not respond to this question. They seemed puzzled and could not think of an example. At this juncture, field note observations support that Ivana did not interrupt the silence until she asked her students if they wanted to do another activity. Ivana's decision to not answer her own question was a highlight and critical moment in defining her role as the teacher, the role of AE activities, as well as, content within the activities and the students' responsibility in experiential learning.

These field note passages and researcher memos show how Ivana approached her role as a facilitator. She began teaching by having students engage content through learning activities. Ivana was explicit with her directions about the physical task her students would engage. She was less direct, even implicit, with the AE content or learning process. It was also observed that students' engagement in the physical task was 100 percent. Not one student withdrew, sat out, or made suggestions such as, "this is stupid" or "I don't want to do this". Instead all students followed the explicit physical task directions (e.g., don't talk if you are the sculptor and everyone must be involved) and a majority of students shared responses in the processing.

These data show how Ivana's teaching began with students' physical engagement with AE activities [tasks]. Their work during these learning activities, then, acted as her guide in facilitation of learning. Her teaching in this instance began with positioning content within the AE activities [tasks]. Ivana's positioning of content within the AE activities partially contributed to defining the rules and order regarding how students would participate in teaching and learning. These rules and order defined student participation as the center of the teaching and learning process. There was another component to shaping the rules and order for teaching and learning, sequencing content across lessons.

Ivana's teaching approach also included an emphasis on intentionally sequencing AE activities [tasks]. Observation and document data support that Ivana had a plan to sequence AE activities [tasks] in a progression. Ivana provided a blockplan that detailed the activities she intended to teach on respective days. Analysis of activities within the blockplan revealed that Ivana planned for her students to participate in icebreaker games in early lessons, trust activities in the middle lessons, group initiatives in later lessons and culminate with learning to belay and climbing on an indoor climbing wall.

Ivana's students progressed through specific AE activities respective to group development stages (observation and document data). For example, in the first two lessons, Ivana designed opportunities for students to be physically active, play together and begin to examine their roles of participation. Some examples of the activities in early lessons were impulse and various name/tag games. In the middle lessons (3-6), Ivana provided trust and group problem solving activities. Many of the "classic" trust activities were used, 2 person trust fall, 3 person trust fall and willow in the wind. The minefield,

spider's web and bridges are examples of the group problem solving activities Ivana presented. Finally, observation data supports that in the last two lessons (7-8) Ivana taught classes on belaying and climbing on an indoor climbing wall, respectively.

This type of progression in AE activities [tasks] is very typical in an adventure education unit. The progression of activities is based on group development. Ivana's sequencing of activities across lessons followed this developmental progression. Ivana's sequencing of activities was her attempt to remain true to one of the guiding principles in AE, begin teaching by having students directly engage content through activities. She began teaching by positioning content within the AE activities [tasks] that focused students on the skills associated with the content of civility and experiential learning. Her global sequence of AE activities [tasks] across lessons was founded on a group development framework.

Positioning and sequencing AE activities [tasks] was Ivana's initial shaping of the rules and order for teaching and learning. Of interest is that the students' participation was the primary focus of both positioning [direct experience with skills associated with civility and self-responsibility] and sequencing [a developmental progression of group process] of AE activities [tasks]. Ivana included students in the development of order for their learning and the rules for social participation for teaching.

Interestingly, in interviews and informal conversations Ivana never explicitly spoke about experiential learning or the group's developmental readiness. Instead, she explained, "I look at the group and see if they are past the icebreaker stage, you know, where will we [the students and her] start." Ivana's references hinted of making

inferences about group readiness, yet she used no formal language to explain what she would see to know "they [students] were past the icebreaker stage".

Ivana continuously detailed in interviews and began her teaching episodes with the AE activities. More specifically, in all observations and when asked about teaching in the AE unit it was evident that she was thinking about students as she described how she would position content within the activities or sequence the activities across lessons. Closely aligned with positioning and sequencing learning activities is Ivana's facilitation teaching approach.

Teaching with a facilitation approach

Ivana had a plan for teaching that began with students engaging skills and content through AE activities [tasks]. This plan included positioning and sequencing AE activities [tasks] that demanded the students be directed by the AE activities and socially participate at increasing levels of self-responsibility across lessons. Ivana built on the skills and content she embedded in the AE activities [tasks] with her use of a facilitation style of teaching. Her implementation of facilitation is best viewed through her attempt to create a safe learning environment and allow students to become self-responsible for learning.

Ivana began to create an emotionally and physically safe learning environment by introducing Challenge by Choice. In Lesson #1 Ivana explained that the Challenge by Choice philosophy was about students choosing their level of participation in activities. Field note observations support that students were responsible for making decisions regarding participation in AE activities. For example, in Lesson 2 students participated in a game called wiggle waggle. The goal of this activity is to address student inhibitions

about looking to others for help, physically touching hands with other group members (this will become important as the group moves into trust activities) and recognizing that everyone has strengths and weaknesses.

The following outline how Ivana framed the activity. She explained that students would work alone and try to complete a simple motor task of placing your hands flat together and spinning them in opposite directions while extending your middle fingers. The end result should have looked like flat hands with a finger sticking out of the top and bottom of the flat plane. The students practiced this alone. Every student in the class tried to complete the task, however, some were more successful than others. A noteworthy observation during this task was the students worked independent of each other. At times some students would look up at others to get information. Ivana, meanwhile, monitored from the perimeter moving around the group and giving encouraging comments. Her role however, was not very noticeable.

Eventually, Ivana stopped the students, had them choose partners and attempt to do the wiggle waggle using their partner's hands. The students practiced with partners. In this practice time the students never demonstrated any off-task behaviors. Ivana, again, increased the group size to 4 people. Of interest is that the students worked with a variety of other students with no hesitation in light of "almost" holding hands. Instead, as the groups of 4 completed the tasks they would yell, "We got it!".

Once the students completed the task in groups of 4 Ivana had them switch people in the groups so that different students worked with and became more comfortable with others. Field note observations detailed Ivana's questions at the end of the activity. Ivana asked, Was this hard? Some students responded, "Yes." Others yelled, "No!" Ivana

questioned, Why do some people think yes and others no? The conversation became directed on the topic that different hand size could make the task easier or more difficult. One student, Dan, explained, "Some people were better than others by themselves, so when you get in groups this makes a difference." Field note observations identified that the conversation progressed to a discussion on students' individual differences, Ivana asked students about activities in which they were good or not good. She continued the discussion about the acceptability of individual differences.

This field note excerpt captures the start of creating a safe learning environment through facilitation. Ivana began creating a safe environment by detailing the global idea of challenge by choice. By detailing challenge by choice she told the students that they were responsible to make choices for their learning and participation in the learning experiences throughout the adventure education unit. She, then, provided AE activities [tasks] early in the unit where students worked individually and progressed to small groups. The progression from individual to small group work provided direct task engagement with gaining comfort working with others. More specifically, the progression represented her commitment to creating a safe learning environment where students were responsible for their individual participation and progressed to more complex social situations.

Students' responsibilities gradually increased to include working with others in small groups, which helped them become more confident. Caryn explained, "You don't feel like you let yourself down as long as you challenged yourself and feel like you did your best." In a focus group interview Clare further explained, "There's no losing, there's

just trying again. So, I mean you could call it failing but you are going to try again and I don't think it is really losing."

Based on lesson observations, field notes and focus interview responses from students it was evident that Ivana's plan to utilize a facilitation teaching approach and allowing students to be directed by experience in AE activities [tasks] was partially achieved through creating a safe learning environment. Ivana explained, "One of the things that throughout the unit I try to get across is that it's ok to make a mistake." In one of the early lesson observations Ivana asked the group to close their eyes. One girl, Ramona, silently hesitated and did not closer her eyes till all of the other students' eyes were closed. Ivana commented on her exchange with Ramona,

> she [Ramona] said, "I waited till everybody else closed their eyes and I did it last to make sure that everyone wasn't looking at me." So that's the age level and that's where she's at and I think that as this group works on it [trust] she will be able to get to do it.

The prior exchange between Ivana and Ramona is representative of Ivana's belief that teaching is about students and not about her.

In the prior exchange, Ivana's primary concern was not her instructional behaviors. For Ivana, teaching was directed by her desire to have students participate in a legitimate social role during teaching and engage in a specific learning process. Positioning and sequencing learning activities initiated the students' role in teaching and learning. It was Ivana's ability to facilitate [set environmental conditions, step back and, then have students reflect] that brought order to and legitimized the students' social participation in teaching and learning.

Ivana's use of facilitation as her teaching approach was an attempt to remain true to another guiding principle in adventure education and experiential learning; students must first engage in direct and meaningful experiences and, then reflect on their actions. Creating an emotionally and physically safe learning environment was imperative if students were to legitimately participate in the teaching and learning process throughout the adventure education unit. Ivana's ability to create an environment where students were safe to take social risks in participation, eventually allowed her to facilitate [set environmental conditions, step back and, then have students reflect] so they would be more responsible for their learning.

Students recognized that Ivana's facilitation approach to teaching was empowering them to be more responsible for learning. Gert explained,

> I think what makes it challenging is that Coach is not hovering over us and, so, we really have to think about it [learning] and get our own out of it instead of relying on her.

Similarly, Stella compared her self-responsibility for learning in the adventure education unit to other classes,

> In class we may not pay attention because we are sitting somewhere but in here [physical education/adventure education unit] we are learning something and having fun with it so we actually learn it and use it other times.

These comments from Gert and Stella reflect student observations of Ivana's facilitation teaching approach and their role in teaching and learning throughout the adventure education unit. Gert detailed that Ivana did empower her to become more responsible for her learning and that she did, "really have to think…and get our own out of it". Stella's

comments go further as she explained that she was more self-directed [she pays attention] because she did, "learn it and use it other times." Another student, Katie, expanded on the notion that Ivana facilitated for learning to be more responsible, "I feel like I have more freedom each time, she [Ivana] makes it easier for us because we [the students] can change it [level of self-responsibility they demonstrate] for our needs. Katie's comments reflect how Ivana's use of challenge by choice and her facilitation teaching approach allowed students to socially participate in the teaching and learning process.

Student descriptions of Ivana highlight how she did not "hover" and allowed students the "freedom" to choose their level participation and self-responsibility. Of interest is a comparison of the above students' comments and field notes and observations. Students detailed that Ivana empowered them, gave them choices, freedom and did not hover and they responded with 100% participation in physical activities. It was also observed that there were no instances of misbehavior. Similarly, in all focus group interviews, which included every student in the class, and throughout all research memos of informal comments made by students there was not a single negative comment or the notion that these students were slacking off. In a focus group interview, a question was asked about the students' learning in the adventure education unit compared to other units in school. Amy commented on her learning in the adventure unit,

> Well, this one [the adventure education unit] you're kind of challenging yourself more than the other ones, they're more sport and games and it's just a game, it doesn't really matter if you do your best or you're not the best, but this [adventure education], you're more challenging yourself. So, you want to do good, so you try harder.

The students' interview responses and observations of participation in the adventure education unit are examples of their engagement in being responsible for their learning. The student responses represent their engagement in a legitimate social process of teaching and learning. These students did not passively follow directions, which created the rules for participation and order in the learning. These students, instead, were creating the rules for participation and order that guided their learning. This legitimate student participation in teaching and learning can be directly attributed to Ivana's conceptions that teaching is about students, it's not about me.

In summary Ivana's teaching in this adventure education unit was directed by her intentional focus on students engaging in a learning process that defined their roles for participation. Ivana first positioned and sequenced AE activities [tasks] that allowed students to begin to participate in the teaching and learning process. It was however, her use of a facilitation teaching approach that truly empowered students to legitimately participate in creating the rules and order for learning. Student comments in interviews supported that they recognized, embraced, and were articulate regarding how Ivana's teaching was directed by their learning.

One approach to explain the relationship between Ivana's teaching and student learning is through an examination of ambiguity and risk created within lessons and across the unit. Ambiguity and risk are most often discussed in the ecology literature through student performance. For example, ambiguity is created when teachers provide less explicit information about performance tasks. Risk is created as a result of more ambiguous learning environments and includes a component of students comparing their performance to set criteria. Thus, low ambiguity [direct and explicit directions] and high

risk [direct and less ambiguous criteria] are most often equated with high levels of accountability resulting in higher levels of student achievement [no accountability means no learning].

In contrast, Ivana consistently provided high levels of ambiguity respective to student engagement with adventure education content. For example, she only publicly referenced global content such as Be Safe, Be Respectful, Be Honest and Be Here and never made the content to be learned more explicit to students. Similarly, Ivana was ambiguous regarding how students would socially and cognitively engage the specific learning activities, though she was explicit with the directions for the physical tasks.

Ivana provided low levels of risk. Ivana never assessed students based on rigid performance criteria nor did she implement a teacher directed grade exchange. Ivana, also, never provided performance criteria for the learning process she hoped the students would engage. Yet, students continued to physically participate in the adventure activities and socially and cognitively participate in processing.

Ivana's teaching in this adventure education unit was not about students performing activities. In this adventure education unit Ivana and her students defined teaching as students learning. First, Ivana created environmental conditions that allowed her students to gain direct experience with AE content and respective skills. Second, she implemented a facilitation teaching approach that allowed students to legitimately participate in the social process of creating order and rules for their learning. Ivana and her students strengthened the program of action through the creation of their teaching and learning relationships. What remains however is the issue regarding the role of accountability in the developing program of action.

SOMETIMES I'M LEARNING AND I DON'T EVEN KNOW IT

Accountability played a role in the development of this PoA. Accountability in this developing PoA was based on the defined adventure education content [civility and experiential learning]. Accountability was also closely related to the facilitation teaching approach that Ivana used throughout lessons. It was the students' ability to legitimately participate throughout assessments that created an alignment among content, teaching and accountability. Because accountability in this adventure education unit was so closely aligned with the content and teaching it is important to review the prior results in the two themes.

First, Ivana and her students created content synergy. Ivana's role in creating this synergy was attributed to her linking adventure education content goals to the broader school outcome for civility and defining lesson content through a lens of student learning process. The students' role in creating this synergy was attributed to their ability to define content as they directly experienced adventure activities sequenced throughout the unit lessons.

Second, teaching was about learning [students' experiential learning process], it's not about me [Ivana's discrete instructional behaviors]. Ivana's role in teaching and learning was to create and sequence learning activities that allowed students to be directed by structures in the adventure activities and to be responsible for their learning [order and rules for learning]. The students responded with high levels of physical engagement in adventure activities. Ivana then utilized a facilitation teaching approach that allowed students to engage in higher order cognitive processes during reflection [legitimate social participation in teaching and learning]. Thus, students' direct

experience with content [order and rules for learning] and, then, reflecting on their engagement in direct experience and their learning process [legitimate social participation] began to shape the strong PoA in this adventure education unit.

The process of defining content was a shared process between Ivana and her students. She defined the boundries based on the outcomes for civility and the shaped the specific knowledge, skills, and values to be learned as they engaged the AE activities. The process of teaching and learning was, also, a shared process between Ivana and her students. Both of these findings are well aligned with structures in the adventure education model. Thus, if Ivana was to remain true to the structures within the adventure education model, respective to accountability, then, her strategies for assessment, which create accountability, needed to be a shared process between her and the students. The subcategories that will support this theme are student processing and embedded content structures.

Student processing

The most observable assessment strategy that Ivana implemented was processing with students. Analysis across field note observations supported that in every class Ivana asked questions. The focus of questions varied. Beginning questions in specific processing sessions directed students' attention to their physical participation in adventure activities, Did you try different ways? [Ivana asking about helping their partner through the Minefield, class #4] and, Where was the pen [Ivana asking about a pen hidden in a circle, class #6]? Field note observations supported that these were easy questions for the students to answer. For example, usually more than one student would

state an answer, sometimes simultaneously. Less verbal students would point to the pen or nod in support of another student's answer.

Processing is well documented in the adventure education literature. Most often her early processing questions are labeled "What" questions. The intention of these questions is to allow students an opportunity to answer less cognitively demanding questions. "What" questions also create a comfortable environment in which students will want to respond to questions asked later in the processing sequence. Ivana's use of "What" questions usually led to asking more questions that demanded greater analysis from the students.

Ivana's "What" questions were usually followed by questions that challenged students to examine their learning and group processes during the prior adventure activity. This next type of question challenged students to explain why they did what they had just described in early "What" questions. Examples from field note observations are the following, How did you try different ways to explain it? [Ivana asking about how they communicated with their partner in Minefield, class #4] and, How did you find the pen [Ivana asking about their process finding the pen hidden in a circle, class #6]? These processing questions are labeled "So What" questions in the adventure education literature.

"So What" questions challenged the students to begin to engage a cognitive process that demanded greater analysis of their engagement with content. Field note observations supported that "So What" questions did challenge students to explain their analysis. One student responded to Ivana's question, I tried to think like you [In Plain Sight, class #6]. Another student responded, I saw them [other students] leave and had a

general idea [In Plain Sight, class #6]. While not every student verbally responded it was notable in observations that a variety of students did make responses to processing questions.

Ivana usually ended processing with questions that challenged students to attempt to make inferences to the next activity or application to contexts outside of the class. Some examples of Ivana's questions in field note observations are the following, Are there times when you have to explain things differently [Ivana asking about communication in the Minefield, class #4] and, In the next activity, how will you look to other students for help [Ivana asking about helping other students during In Plain Sight, class #6]? These final questions in processing sessions are labeled "Now What" questions in the adventure education literature.

Field note observations supported that students less frequently responded to "Now What" questions; though answers were usually given. Ivana's "Now What" question inquiring about explaining things [directions], was answered by Stella, "Sometimes, in the car, I tell my Mom where to go using a clock." Stella went on to describe that she would tell her Mom to look at 3 o'clock to look right, etc. For example, if Stella's mother was think of herself at the center of a clock then 12 would be in front of her, 3 to the right, 6 directly behind her, and 9 to the left.

Data supported that Ivana and her students did have meaningful exchanges during processing. Ivana asked three distinct styles of questions, "What", "So What" and "Now What" questions. These questions challenged students to detail their engagement with content through direct experience, analyze the learning processes and attempt to make application to follow-up activities or applied contexts, respectively. These data, however,

are only representative of a micro-evaluation of student processing post adventure activities. On a macro-level, global distinctions existed regarding student processing across lessons.

A broader examination of field note observations revealed that the adventure education unit had two distinct phases, processing in early lessons and processing in later lessons. The distinguishable difference in these phases is that Ivana asked more questions about individual student learning in early lessons and, then, asked questions relative to group processes in later lessons.

Field note observations from the first lesson cited the following passage. Ivana had the students get into two equal size circles. The circles were positioned next to each other so that they were almost touching. The circles, made of students, would slowly rotate till Ivana said, "Stop." The two students that were at the points in the circles that were almost touching would turn around and try to say the other person's name before the other. Whichever student said the name first would win and the loser would join the other group. One circle grew much larger than the other. The smaller circle began to gain momentum and eventually surpassed the other group size. There was a collective, "Yeah", after the smaller group won the bout to go past the other in size. Ivana stopped the group and asked, "Do you think you know all of the names?" Students collectively respond, "Yes." Ivana continued, "Did you feel a pressure when you had to name your classmate?" Some students said, Yes.", others, "No." Ivana ended with, "We still need to practice [a pause] walking in circles." Everyone laughed and they moved on to the next activity.

Questions that Ivana asked in early lessons were all similar to the above data. Most relevant in this data are the questions that Ivana asked. All of the early questions focused the students on their individual learning process. She only challenged students to reflect on their own actions and process. Even the task that she used positioned the individual at the center of the learning process; student X [individual student] tried to say the name of student Y [individual student] before the other.

Early processing aligned well with Ivana's instructional goal of creating a safe learning environment. Students were not challenged to make grand inferences nor were they responsible for a group process. Instead, Ivana used early processing that allowed individual students to participate in building a safe relationship with her. Ivana's and the students' relationship focused on holding themselves accountable for their learning though reflection. The early relationships that Ivana and her students formed respective to accountability set the stage for more assessment with a focus on the group process and higher expectations for self-responsibility.

In the second half of the adventure education unit there was a dramatic shift in Ivana's and her students' processing. Field notes supported that Ivana brought the group together to reflect on their collective work in specific adventure activities. These instances of processing were more representative of a "traditional" group reflection in adventure education. In these more "traditional" group reflections the group comes together post activity, gets in a circle and the teacher asks questions. The shift in processing in the second half was more distinguishable as the questions followed a more complete "What", "So What" and "Now What" sequence.

Processing in the second half of the unit included questions that were described in early lessons. Field note observations referenced that Ivana included and the students responded to more applications questions. The following passage from field notes captured an instance in the shift in processing. In the fourth lesson Ivana had the students do an activity called "Traffic Jam". The group formed into two even groups. The groups then formed a straight line facing each other. Students in the groups stood on hot spots so they were able to identify when someone moved to a new space. The goal of the physical task was to have the groups switch sides. The process to complete this activity is based on a set sequenced of moves; whereby, one group must move one person and, then the other group moves one person. The progression of moves increases to two people from one group and two from the other. Simply stated, it was a very cognitive activity and demanded that the groups make these moves in a specific sequence. The students struggled completing this activity. Yet, no students walked away from the task nor did they say, "Let's give up." Instead, observations supported that students continued to build on their prior attempts and eliminate sequences that did not work. The students eventually figured out the sequence and were very excited

Ivana asked "What" and "So What" questions after the students completed the activity. She did however add more application questions in the sequence. Noteworthy in this section of field notes is that the researcher highlighted the metaphor of following a sequence of steps and how this is related to belaying. The researcher knew that these students would eventually learn how to belay. Ivana's blockplan included them belaying each other when they climbed on the indoor climbing wall. Ivana, however, chose not to

"take control" and mention belaying. Instead she let the conversation play out and the students formulated answers about following sequential steps in Math class.

Student processing in this adventure education unit was Ivana's primary strategy to implement assessment. Processing was an assessment strategy to create a system of accountability that was primarily focused on students' being more responsible for their learning, one of her instructional goals. This type of assessment is consistently evident in the adventure education literature. Data supported that Ivana's use of processing was well aligned with structures for assessment within the adventure education model. Questions still remained about accountability. Why did Ivana ask processing questions? What guided her in asking processing questions? The following subcategory addresses these questions.

Content-embedded structures

Ivana's processing questions were not random. Ivana had a plan for processing that was very similar to her plan to use a facilitation teaching approach, let students be directed by engagement in activities and ask questions. Ivana never asked questions about student actions or comments that were not observed in a prior activity. Instead, student actions in the prior activities served as the focus of her processing questions. So, then, what was it about the activities that elicited students' actions that provided ample information for Ivana and her students to process?

Students explained that adventure activities were fun, challenging, new and motivating. As the researcher asked probe questions to elicit explanations as to why adventure activities were all of this, three students provided answers. Tucker explained, "It's challenging your mind and body in different ways than just reading books and

sports." Cole thought, "You have to think more in adventure challenge." Finally, Hayden contributed, "It's like out of the ordinary." Students perceived adventure education activities as learning experiences that were novel and made them think, thus, providing them a challenge that was interesting.

Novelty, challenge and interest were important variables to these students, respective to their learning. Interview data supported that there were, however, inherent structures in the adventure activities that directed students' attention to their learning process [defined content and facilitation teaching approach]. Stella explained, "It is good to hear other people's ideas. You can take other people's ideas and like do other things [make adjustments] with them [ideas] and learn more." Stella identified that the structure of the activities where two or more students are working together helped guide her learning. In her words, she, "learned more."

Linda gave an example of how structures in the activities held her accountable, "I mean, someone has an idea, telling people, but they wouldn't be able to do it all by themselves they would have to use teamwork to get it done." In this quote Linda is explaining that structures in the adventure activities potentially hold students accountable for their process. Stella's and Linda's interview responses are representative of other students' conceptions of how structures in the adventure activities enabled Ivana and the students to assess student learning through processing.

One exemplar from field notes that represents the role of embedded content structures in accountability is the following passage describing the Spider's Web. Ivana had setup a Spider's Web (a giant web made of bungee cord making many holes). She framed the initiative with the following requirements. First, each student would take a

puzzle piece. Second, they would get into two groups each on one side of the web. Third, they were to pass pieces through the web and add another piece of the puzzle. Fourth, the growing puzzle then was passed through the web, again. Fifth, each hole could only be used once. Finally, if the puzzle or the students touched the web the group would start over.

The students began by brainstorming about how they would attack the problem. Ivana moved back away from them and the web. The brainstorming was an open discussion of ideas and role clarification. Students assumed various roles as they engaged the activity. For example, some students were more vocal serving as coaches, some made sure the puzzle stayed together and others watched to assure the web was not touched. Again, all of the time that this was happening Ivana had stepped back from the students and silently watched. Ivana did process with the group after the activity. However, it is the embedded content structures in this activity that are important to this subcategory.

Ivana later spoke about the Spider's Web activity and the resultant students' focus, attention and learning in light of her stepping back silently, "It's variety, but it's also the task in that it keeps them focused. It keeps them responsible." This response opened the door to the idea, was it the variety or the structures in the adventure activities? Ivana elaborated, "There are so many activities that accomplish the same thing." The variety that Ivana and her students spoke of was variety of adventure activities. There were, however, structures of embedded content within the activities that remained consistent.

Structures within each activity allowed students to repeatedly engage content [civility, self-responsibility and students' experiential learning process] in various

adventure activities. Important to remember at this point, however, is that there was also a developmental sequence to the progression. Prior descriptions from field notes referenced the "Minefield" and "Traffic Jam" activities. While physically different, both activities had structures that demanded the students listen to one another. Similarly, Ivana's processing questions allowed the students to examine this consistent structure. Whether Ivana explicitly told them communication, listening and giving good directions was important or not, structures in the activities demanded the students engaged in all of them. Thus, accountability was initiated through content-embedded structures in the activities.

One student, Abby, summed up how content-embedded accountability worked, "Well, it kind of puts everything we have been learning about into action, like trusting each other and like being ready to do stuff and being ready to challenge yourself and actually challenging yourself." Abby described how climbing on the indoor climbing wall held her accountable for her learning. Abbey recognized, albeit at the end of the unit, that she had been learning. Her next response reaffirmed the role of content-embedded structures within the system of accountability, "Yeah, like sometimes we are learning a skill and I don't even know that we are learning it, just because we are having fun."

Content-embedded accountability was created through the inherent structures within the adventure activities and the developmental sequence followed by Ivana. Conditions within the activities demanded that students practice skills associated with the outcome of civility, engage in a highly cognitive learning process, engage in a group process and eventually be more responsible for their learning. Content-embedded accountability aligned with Ivana's and her students' co-created definition of content. Content-embedded accountability also aligned with Ivana's plan to use a facilitation

teaching approach as well as her students' conceptions of her instruction. Student processing after activities was an intentional assessment strategy implemented by Ivana. It was content-embedded accountability, however, that drove the assessment and allowed Ivana and her students to create the alignment among content, teaching and assessment.

SUMMARY OF RESULTS

This study was designed to answer two research questions. First, how does a program of action develop? Results supported that the strong program of action in this adventure education unit was developed through Ivana and her students developing relationships. These relationships positively influenced the developing program of action. Ivana and her students created content synergy as she made a link between the broader school outcome for civility and the adventure education unit and defined the content within lessons through a lens of student learning. It was, however, when Ivana allowed students to engage content in adventure activities [direct experience] and then develop personal definitions of content to be learned where content synergy was realized.

Ivana and her students developed relationships about teaching and learning. Ivana had a plan to implement a facilitation teaching approach that positioned student learning at the center of the teaching and learning process. Students recognized their role in creating order for their learning. Students also embraced this responsibility to legitimately participate in the teaching and learning process. Thus, teaching was about learning. Ivana and her students defined learning as student engagement with direct experience and then reflecting on their process.

Finally, results supported that accountability played a significant role in the developing program of action. Ivana's use of student processing as the primary strategy

for assessment invited the students to continue in developing relationships. These relationships were focused on creating accountability. Processing questions challenged students to meaningfully reflect on their learning. This assessment strategy aligned well with Ivana's and the students' order for teaching and learning. Embedded content structures within the adventure activities directly influenced Ivana's processing questions, student engagement with content and their answers to questions. Content-embedded accountability in this adventure education unit allowed Ivana and her students to realize the positive result of alignment among content, teaching and assessment. This positive result was a strong program of action that allowed students to learn.

CHAPTER 5

DISCUSSION

In a review of ecologically based research on teaching physical education Hastie and Siedentop (1999) called for further investigation of physical education programs that included a strong program of action (PoA). These researchers also suggested that adventure education (AE) is one instructional model that merited a closer ecological examination respective to a program of action (PoA) and content-embedded accountability (CEA). The present study is an initial step to better understand the development of a PoA and the significant role accountability has in shaping this process. This study is important, as it is only the second study to examine adventure education using an ecological framework. More specifically, this was the first study to explicitly examine the development of a PoA throughout an adventure education unit.

Previous research using the ecological framework focused on a type of microanalysis of various components within the ecology. Findings from this research show many specifics about physical education teachers. For example, physical education teachers use less explicit terms when explaining instructional tasks (Jones, 1992) creating greater ambiguity for students, teachers "trade-off" instructional tasks for student compliance with managerial tasks (Hastie & Pickwell, 1996), and that teachers spend little time developing refining tasks in physical education (Jones, 1992; Lund, 1992). These micro-level findings also show us much regarding students. For example, students will negotiate tasks that are too difficult or ambiguous (Marks, 1988), rules, routines, and expectations positively influence student engagement (Fink & Siedentop, 1989), and the

students' agenda (student social task system) can positively or negatively effect the learning environment (Carlson & Hastie, 1996; Hastie & Pickwell, 1996).

This study supports the findings from previous and also extends these findings because this study took a more macro-analysis. For example, Ivana maintained solid RREs in her lessons, her use of less explicit instructions prior to adventure activities led to higher levels of ambiguity, and her use of student processing was not as "rigorous" as more teacher-directed forms of assessment. The purpose of this discussion is to examine the findings in this study at the macro-level.

Three topics are important to discuss in this section. First I will discuss the relationship between an instructional model and the process of developing a strong program of action. Specifically, I will detail some of the findings from the prior microanalyses, make a connection to the limited research on the broader foundational construct of a program of action, and extend our thinking regarding the significant role of an instructional model in developing a program of action. Second I will discuss the significant contribution of content-embedded accountability to the program of action in adventure education. Specifically, I will examine the findings related to teacher-centered forms of accountability implemented in physical education and extend our knowledge of Doyle's (1983) understanding of content-embedded accountability. Finally, I will review implications for inservice physical education teachers, physical education teacher educators, and the potential for future research.

THE CREATION OF A PROGRAM OF ACTION

Previous physical education researchers have described casual PoAs (Siedentop et al. 1994; Supaporn et al, 2003; Ward et al, 1999) while others have highlighted robust

PoAs (Hastie, 1995, 2000; Pagnano, 2004). In instances where weak PoAs exist, teachers have been depicted as teaching in "a curricular zone of safety" (Rovegno, 1994), student learning has been described as "no sweat" (Siedentop et al., 1994) and accountability is a trade-off (Lund, 1992) where students are responsible to remain "busy, happy and good" (Placek, 1983). In comparison, in physical education classes with strong PoAs teachers' plan for student learning (Pagnano, 2004), learning opportunities include high levels of ambiguity and risk (Hastie, 1995), students are more responsible for their own learning (Hastie, 1995, 2000; Pagnano, 2004) and accountability is driven by student engagement in learning tasks (Hastie, 1995; Pagnano, 2004). Findings in this study support that the development of a strong PoA has links to the efficacy of an instructional model and assisting a teacher and students in defining the rules and order within the ecology.

There is a considerable amount of research on the discrete variables in the physical education teaching and learning ecology. Fewer researchers have examined the development of a program of action in the overall ecology. Pagnano, (2004) explained that the "reverence" of the teacher has a significant impact on the development of a strong program of action in a sport and physical education contexts. She found that "reverence" which was afforded to the physical education teacher was created through his dual role as a teacher/coach. Pagnano's (2004) findings are noteworthy as the teacher played a significant role in the developing PoA and that "reverence" was an influencing variable in the process. In the current study Ivana played a significant role, however, her role was defined through structures within adventure education and positioning her students at the center of the ecology, compared to a reverent role. To examine the influence of structures first the instructional model should be fully described.

The literature on adventure education portrays structures that assist teachers and students in making pre-impact, impact and post impact decisions. First, content goals are conceived as global areas such as interpersonal skills and intrapersonal development (Priest & Gass, 1997). Second, instructional methods in adventure education are portrayed as the act of facilitation (Priest and Gass, 1997) or indirect teaching. Third, the espoused process of student engagement and learning is experiential education. Finally, assessment of student learning is related to student-centered strategies such as processing and student reflection. Noteworthy, is that the most critical structure in all adventure education practices is that students are positioned at the center of all structures throughout the model; content, instruction, and assessment (Williamson & Gass, 1993).

Ivana implemented structures within adventure education with a high level of integrity. Her role in the developing PoA included her ability to define content goals that centered on the students' experiential learning, her skills to facilitate at a level of "technical virtuosity", and her asking pertinent questions that helped students develop their conceptions of subject matter and in discovering relevance, which directed their future behaviors.

The prior teacher actions, which are all well aligned with structures in adventure education, contributed to developing a strong PoA. Ivana did, however, have some "shortcomings" in her implementation of structures of the model that slighted the strength of the PoA. For example, though Ivana was articulate about her content goals at the outcomes level and in reference to her desires for student behaviors in applied contexts outside of physical education; she was less direct regarding the specific lesson objectives. Similarly, she had no lesson plans that detailed her intentions to ask processing questions.

Through observations, however, it was evident that she implemented the most critical adventure education structures such as positioning students at the center of the teaching and learning, defining the broad boundries of Challenge by Choice, allowing students to be guided by task conditions, and processing with students as assessment of learning. The implementation of these structures rendered her lessons recognizable as adventure education and meaningful to her students. Noteworthy, is that in spite of her "shortcomings" students found ways to excel and still became a major part of the developing program of action.

Students in this adventure education unit were motivated, challenged and demonstrated 100% participation with no instances of misbehavior. The absence of misbehavior, however, does not constitute student learning. Interestingly, students in this adventure education unit were articulate with their thoughts regarding content, roles in teaching and learning, and were actively engaged in processing or assessing their learning. Thus, students embodied the most critical structure in adventure education; that students are at the center of the process throughout all components of the teaching and learning process. Lave and Wenger (1991) described this as a "learning curriculum" in comparison to a "teaching curriculum". In the learning curriculum, however, students are given "freedom within structures" (Woolfe, 1992) to turn activities into personally meaninghful experiences. The findings in this study support Carlson and Hastie's (1997) conclusion, that the student social task system can positively influence the instructional task system in an instructional model such as Sport Education. Noteworthy, is that adventure education possesses structures that assist teachers and students in creating a

strong PoA centered on the student's engagement in experience as the reference point for learning (Greenberg, Rice, & Elliot, 1993; Hovelynck, 1998; Woolfe, 1992)

Metzler (2005) suggested that if an instructional model is to achieve it's fullest efficacy, the teacher must remain true to the inherent structures. Ivana was a teacher that had a significant understanding of the foundational principles of adventure education. The PoA in this AE unit can be described as strong and resulted in an overall ecology focused on students and their learning. A PoA eventually defines the rules and order for learning. Ivana, her students and the AE model all contributed to defining the rules and order for learning, thus the development of a strong PoA. This case study is the first to move the research on the teaching and learning ecology forward by including a PoA and structures of an instructional model.

The development of a strong PoA in this AE unit had a direct link to the relationships that formed among the teacher, students, and structures within an instructional model. One way to conceive how Ivana and her students worked together to enact a strong PoA in this AE unit is to examine three distinct interactions, teacher-instructional model, student-instructional model, and teacher-student. These relationships formed within the ecology and were the process through which Ivana and her students developed a strong PoA.

First, the instructional model influenced Ivana's beliefs about content, instruction, and assessment, which were all well developed with respect to structures within adventure education. Ivana remained true to the AE model structures, yet she demonstrated an ability to personalize the structures respective to her school curriculum, capacity to teach within the model structures, how she believed her students would learn,

and her capacity to assess through reflection. Thus, the teacher/model interactions were meaningful to Ivana as the model structures gave her direction in, (a) defining content at the curricular and lesson levels, (b) positioning content within tasks, (c) sequencing tasks for experiential learning, (d) facilitating for experiential learning, and (e) assessing student learning through reflection. These teacher/model interactions contributed to Ivana's relationships with the students and the development of a strong PoA.

Second, students had experiences that were founded on structures within the model. Students participated in developing content synergy, instruction through their roles in experiential learning, and assessment through their roles in reflection. Student roles in the development of the strong PoA were not passive nor did they simply comply with a teacher-directed primary vector. Students in this unit helped shape content as they engaged the AE activities that contributed to the development of content synergy. Students also had an active role throughout instruction as they were increasingly challenged to take more responsibility for their learning and group process. Finally, students had definitive roles in assessment. Students were responsible for reflecting on their performance, which had direct links to making changes for future tasks and contexts outside of physical education. These student roles regarding content, instruction, learning, and assessment are well defined in the AE model. Student/model relationships allowed the students to find meaning for their learning, engage in a developmentally appropriate sequence for learning and become more responsible for their learning and group process. Student/model relationships contributed to the teacher/student relationships and the development of a strong PoA.

Finally, the teacher and students developed relationships, founded on the prior two relationship categories, which contributed to the development of a strong PoA. Teacher/student relationships in this unit are best described as a shared process in content development, teaching and learning, and socially constructed assessment. These teacher/student relationships flourished because of well-developed structures within the AE model that defined the rules and order for teaching and learning throughout the unit. Thus, in this AE unit a strong PoA was defined as content synergy, defining teaching as student engagement and experiential learning, and creating a system of content-embedded accountability. Content synergy, teaching for student engagement and experiential learning, and content-embedded accountability developed as a result of teacher/model, student/model, and teacher/student relationships (see figure 6).

Instructional models are organizational representations of content to be taught, instructional methods and assessment strategies. Instructional models, then, provide global structures for teachers and students as they work to shape the rules and order for learning [PoA]. In this study Ivana was influenced by structures in the AE model to make a connection to broader school outcomes for civility, develop a plan to have students be directed by the embedded content in AE activities, and for students to engage in experiential learning.

Pagnano (2004) described the process of developing a strong program of action through the examination of learners in a community of practice. She described the community of practice through the established task systems, instructional, managerial, and student social. However, she was resigned to explain how the teacher and students developed their work in these interrelated systems to that of a student "reverence" for the

teacher/coach. Findings in this study, however, support another conclusion, that a teacher and students develop a strong PoA through definitive structures within an instructional model. It is these structures that shape the rules and order for teaching and learning.

Ivana implemented many of the structures within adventure education and positioned students at the center of the teaching and learning ecology. Siedentop (1988) described this as "technical virtuosity", however, the instructional model influenced Ivana's ability to teach the model with a high level of integrity. Similarly, the students were articulate and embraced their central position and responsibilities within the learning ecology. This finding contradicts many of the prior results in physical education that portray students as subversive to instruction and/or passive in the learning process (Hastie & Siedentop, 1999). An instructional model, then, must have a sound content orientation that is global enough for teachers to make connections to broader curricular outcomes but specific enough to see how students will engage embedded content and socially participate in the teaching and learning process. An instructional model must, also, possess structures that allow students to create meaning for their roles and learning. In AE this is a central tenant. The AE model assisted Ivana and her students in developing rules and order for teaching and resulted in a strong PoA.

Content-embedded Accountability (CEA) in Adventure Education

Doyle (1983) eloquently explained that without accountability there is no task. To this avail, it is what students are held accountable for that eventually defines the task they are to engage (Doyle, 1983). To date researchers in physical education have chosen to examine only teacher-centered forms of accountability. Teacher-centered systems of accountability are formal and informal (Tousignant & Siedentop, 1983).

The evidence associated with formal accountability supports that in evaluative situations where grades are exchanged for instructional tasks through performance on tests, etc., students are more likely to achieve higher grades (Lund, 1992; Silverman, Kulinna, & Crull, 1995). Most formal accountability in physical education, however, is focused on managerial tasks with the intent that students remain compliant (Lund, 1992).

Teachers in physical education also implement informal accountability systems through active supervision (Tousignant & Siedentop, 1983). It is through active supervision or monitoring (Hastie & Saunders, 1990) that students remain on-task. Other researchers, however, described teachers monitoring only for off-task behavior or managerial tasks (Siedentop, Doutis, Tsangaridou, & Ward, 1994).

Collectively, the findings regarding accountability in physical education portray a dismal picture, whereby accountability, both formal and informal, has not significantly contributed to a strong program of action. Conversely, Hastie and Siedentop (1999) explained, "that work that eventually gets done in classes depends upon the strength of the program of action." (p. 21). Thus, the development of a PoA and the system of accountability are closely related. At this juncture it is important to recognize that a program of action defines the rules and order for teaching and learning and that any system of accountability, then, should be directly related to the global process of developing a PoA.

The current study presents an analysis of content-embedded accountability. This system of content-embedded accountability was directly related to the positioning and sequencing of content throughout content development, instruction and learning, as well as assessment. Simply, CEA was the underpinning for the strong program of action. First,

the early stages of content-embedded accountability were evident as Ivana positioned content at two distinct levels, the school curriculum outcome for civility and within the AE activities. Ivana also explained sequencing through a lens of how she intended students to learn. Regarding content, students were articulate and described similarities between what they learned and the content that Ivana positioned at the curricular and task levels. Content-embedded accountability began early in the unit as content was positioned at the curricular level and within the AE activities.

Second, because Ivana had positioned and sequenced content within the AE tasks she was able to implement an instructional approach espoused in AE, facilitation. In this role she allowed students to be directed by content embedded in AE activities, rather than her explicit task directions. The use of facilitation emboldened the system of content-embedded accountability as students had to look to their actions and environmental conditions within the tasks, instead of Ivana. Students recognized the rules and order for their roles and were articulate in their descriptions of their experiential learning process. The rules and order for learning now took on a more definitive structure, (a) content was positioned within the tasks and had a connection to the school outcome, (b) students would be directed by structures and content embedded in the tasks, and (c) Ivana would implement an instructional approach that allowed students to engage in experiential learning.

Third, if content was embedded in the tasks and students were to be directed by task conditions, then assessment should focus on the students' learning and actions as they engaged content during the tasks. Ivana had a plan to assess learning through student reflection on their actions and behaviors during AE activities. This formative assessment

strategy continued to strengthen the rules and order for learning. In this instance, students were responsible for examining their actions respective to content embedded in the tasks.

As a result of positioning and sequencing content within tasks and across lessons, teaching with a facilitation approach and using reflection as her dominant form of assessment, Ivana had essentially created a system of accountability that was defined by embedded content within tasks. This system of accountability is called content-embedded accountability (CEA). Doyle (1986) described CEA as conditions arising from environmental conditions where content is embedded within a task and directs students' attention, as well as, holds students accountable for cognitive processes. Environmental conditions in this instance were created by the alignment among content, instruction and assessment. Findings in this study support Hastie and Siedentop's (1999) contention that work that eventually gets done in physical education is related to the strength of a PoA. A further conclusion is, as a teacher and students develop a PoA the system of accountability that is structured within the instructional model has a significant role in shaping the rules and order for learning. Hastie (2000) introduced CEA as a third vector, which interacts with teacher and student directed vectors, respectively. Findings in this study support that CEA may not be a vector, rather it is a student and task centered system of accountability that is included as a structure within an instructional model such as AE.

Conclusions

In summary the findings of this study portray the complexities within the development of a robust learning ecology. Teachers, students, and structures within an instructional model vigorously interact to strengthen or weaken relationships that

potentially impact student learning. Instructional models have the potential to assist teachers and students in developing strong PoAs. Specifically, instructional models that possess structures that position the students at the center of the learning ecology can influence the merging of the instructional and student social task systems.

In an introduction to Teaching Games For Understanding (TGfU) Griffin and Patton (2005) highlight that in TGfU there are inherent structures that strengthen the model and the potential PoA and system of accountability. For example, in TGfU there is the structure for the use of "critical questions" to direct the learners' attention to their behaviors and environmental conditions in game forms. This structure for experience guiding the learners' reflection, positions the students' experiences at the center of the ecology. Results of this study support that instructional models, like AE and TGfU, can possess structures that assist teachers and students in defining the rules and order for learning. One strutures present in adventure education and TGfU is the model structure for positioning content within tasks and the use of reflection as an assessment strategy. This seems to be a critical variable in developing a system of CEA.

Rink (2001) explained that much, "of the research done on instruction has been framed, not to establish theory or to understand learning, but rather to establish direct links between what a teacher does and what a student learns." (p. 123) She further explained, "there can be no single approach to instruction." (p. 123) Findings in this study support Rink's contention that there is no direct line between teaching and learning. The teaching and learning ecology is a set of complex relationships. Teachers and students make hundreds of decisions within one teaching and learning episode that potentially impact student learning. However, an instructional model may be one variable to better

understand how and why student learning happens within the ecology. More specifically, a PoA and CEA are two variables within the ecology that draw on sound learning theories from both the cognitive and behaviorist perspectives. Simply, the learning ecology cannot be reduced to a set of purely social interactions, nor can we capture learning through a pure task analysis. Instructional models possess structures that guide both the social and cognitive relationships among the teacher, students, and tasks within the ecology.

Implications

In light of the findings there is a range of implications for physical education teachers (preservice and inservice) and teacher educators. Inservice teachers could benefit from seeking out and implementing instructional models similar to AE. In these instances teachers could potentially redefine their PoAs and bring student learning, as well as, social participation to the forefront of the physical education experience. It should be noted, however, that an instructional model is not the quick fix for student learning and their social participation.

There is a fine line between purposefully stepping back and creating higher levels of ambiguity and risk and "rolling out the ball". The critical ingredient in developing a strong PoA in this investigation was Ivana. Ivana possessed a reflective nature and capacity to examine structures within the AE model through a lens of her students. When she spoke of content and teaching she spoke of students doing the AE activities, however, what she was articulating was the AE content and the initiation of assessing student learning through their actions.

Physical education teacher educators can also benefit from the findings of this investigation. The AE model offered inherent structures for Ivana to become more

reflective on content, teaching and assessment. The AE model also helped her create alignment that positively impacted student motivation, engagement and shift their focus to learning. The AE model could potentially be used with preservice teachers as a foundation and help them engage in the reflective aspects of teaching physical education. If structures are present within a model, which creates a framework regarding content, teaching and assessment, then, pre-service teachers could spend more time examining their behaviors in relationship to student learning (McCaughtry & Rovegno, 2003).

In conclusion more research on developing strong PoAs is needed. The current investigation follows a line of research on the ecology that has evolved to include examining instructional models such as Sport Education and Teaching Games for Understanding. One area of further investigation could include an analysis of CEA respective to "students creating meaning". The findings of this study support that students embraced their roles in the learning ecology. Future research questions could include; do students' prior conceptions of AE activities, AE content goals, and experiential learning influence their engagement in the AE unit, and/or does the personal meaning develop throughout the AE unit?

Another area of research interest could include an analysis of adventure or play theory in the learning ecology. Adventure education advocates have portrayed the critical role of "adventure" in learning. Similarly, early play theorists position play as central in the educative process. Future research that includes such constructs will focus on student dispositions during task engagement with the intent to examine how they perceive the environmental conditions relative to adventure and play structures.

Finally, physical education researchers need to explicitly examine the use of instructional models with students in physical education teacher preparation programs. Physical education teacher educators and researchers have cited the need for future professionals to be educated in the skill of reflective teaching. However, many students in teacher education programs spend their reflection time focused on managerial aspects of their lessons and students' off-task behaviors. Instructional models could provide structures whereby future professionals can shift their attention to student learning and developing their own "technical virtuosity" relative to espoused structures within the model.

APPENDIX A

CONSENT FORMS

Parent Consent Form

To: Parents or guardians of _____

My name is Ted France. I am a doctoral student at the University of Massachusetts Amherst. As part of my doctoral studies, I am conducting a study for my dissertation regarding physical education teachers and adventure education. I am interested in observing physical education classes during an adventure education unit.

I will visit your school from November 29th through the end of the adventure education unit. During this time I would like to observe all of your child's classes and keep detailed notes. After my observations, I will ask your child to be interviewed. I am requesting your permission to do my observations and interview your child once my observations are completed. The interviews will focus on what your child has learned during the adventure education unit.

The actual name of the school, school district, and participants will never be used when I talk or write about this work: pseudonyms will be used instead. I may use comments in my dissertation as well as in professional presentations or publication, but always with pseudonyms. I will not discuss what your child has said with other students, teachers or anyone else in the school. Whether your child participates or not will not be connected in any way to your child's grade in physical education.

I would appreciate your signing this form and having your child return it to school in the provided envelope. Participation in this study is voluntary and your child may withdraw from the study at any time.

I will be pleased to answer any questions that you may have with regard to the study. Please call me at home (413) 262-8658 or at my office (413) 748-3774. My advisor, Dr. Linda Griffin, is also available to answer questions and can be reached at (413) 545-2336.

Sincerely,

Ted France, Doctoral Candidate
Physical Education Teacher Education Program
University of Massachusetts Amherst

Parent Signature: _____

Please print name here: _____ Date: _____

Researcher Signature: _____ Date: _____

Teacher Consent Form

My name is Ted France. I am a doctoral student at the University of Massachusetts Amherst. As part of my doctoral studies, I am conducting a study for my dissertation regarding physical education teachers and adventure education. I am interested in observing physical education classes during an adventure education unit.

I will visit your school from November 29th through the end of your unit. During the adventure education unit I will observe all of your classes and keep detailed notes. I will also interview you concerning aspects of your instruction throughout the unit. The interviews will not interfere with your teaching because I will complete them during your convenience. I will also interview several students in this class. The conversations will be tape recorded and later transcribed. Neither your name nor any identity information will be used in the report; pseudonyms will be used instead. Your comments will be kept entirely confidential and I will not discuss your comments with other teachers or anyone else in the school. I may use comments in my dissertation as well as professional presentation or publication, but always with pseudonyms.

After reading this form, if you agree to participate, please sign below. After agreeing to participate, you may withdraw from the study at any time. Your signature in the space marked "Signature" below indicates that you have read this form and volunteer to participate.

I will be please to answer any questions that you may have with regard to the study. Please call me at home (413) 283-5478 or at my office (413) 748-3774. My advisor, Dr. Linda Griffin, is also available to answer questions and can be reached at (413) 545-2336.

Sincerely,

Ted France Doctoral Candidate
Physical Education Teacher Education Program
University of Massachusetts Amherst

Participant Signature: _____

Please Print name here: _____ Date: _____

Researcher Signature: _____ Date: _____

APPENDIX B

INTERVIEW GUIDES

Teacher Interview #1

Professional Background

1. Work Experience; teaching/adventure education
2. Degrees held years teaching
3. Work/workshops/training in adventure education.

Teaching Adventure Education

1. Reasons for beginning to include adventure education in the school physical education program.
2. What have been your experiences in learning to teach adventure education?
3. How would you describe teaching adventure education?
4. What are you trying to teach in adventure education (for this group coming up)?
    a. Are there other areas of content in adventure education?
5. How is teaching adventure education similar or different from your past teaching experiences?
6. What does teaching adventure education address that was priorly not in you're your schools physical education experience?
7. How did you or do you begin to prepare an adventure education unit?
8. How do you select the specific activities that you will include in a lesson?
9. Compared to other units how would you describe your students learning in adventure education?
10. Compared to other units how would you describe your students when they are working together on an adventure activities? (Maybe she will need a specific example of an activity)
11. When you are teaching an adventure education unit how do your students know how well they are doing?
12. What are your intended outcomes for this adventure education unit?

Teacher Interview Guide Post Observation

1. How would you describe the adventure education lessons so far?
2. Please identify one or two instances when things (teaching and learning) went extremely well.
    a. What was your role in the positive outcomes of those instances?
    b. What were your students' roles in the positive outcomes of those instances?
    c. What was the role of the activity in the positive outcomes?
    d. How did you and your students know things went well?
3. When you are beginning an activity how do you present it to the students?
4. What kind of information do you share with them prior to their beginning an activity?
5. How do they react to your approach when presenting the activity (I would think that this would be a probe as she should not be giving them all of the information upfront)
6. When your students are doing an activity what is your role?
7. What are you watching/listening for when students are doing an activity?
8. What happens if things are going in a direction that is not productive?
9. Can you describe certain activities that are better for teaching certain concepts?
10. What makes these activities more appropriate in certain instances?
11. If you are "facilitating" the group and student learning how are the students held accountable to actually get work and learning done?
12. (Select and activity that went well) Please recall the parts of the activity that helped your students work well together.
13. Are there certain activities that allow your students to really work better together?

Student Focus Group Interview Guide

1. Describe what was most important to you during the adventure unit up till now?
2. Explain to me how this unit is similar or different than other units that you have had in physical education?
3. What does Ms. Team want you to learn in this unit?
4. Can you describe how Ms. Team teaches you during this unit?
5. How does Ms. Team get you to do things in this unit? (compare to other units)
6. Is your working with other students different in this unit compared to other units in physical education?
7. How do you know if you are successful in this unit compared to others?
8. How do you work with classmates in this unit?
9. Does it make a difference in your learning, working together?
10. What are some of the rules in this unit?
11. How does Ms. Team help you learn in this unit?

Student Focus Group Interview Guide #2

1. What did you like most/least about this unit?
2. Was this adventure education unit new or interesting? If so, why or why not?
3. What were some of the more challenging activities in this unit?
    a. What made those activities challenging?
    b. How could you make one of the easier activities in this unit more difficult?
4. Can you describe how your working together may have changed throughout the unit?
5. What were some of the more important things that Ms. Team did to help you learn during this unit?
6. How did you help other students learn in this unit?
7. How did you handle the situations when your group had difficulties doing some of the activities?
8. How did Ms. Team help you when your group had difficulties?
9. Would you recommend keeping adventure education here at Will E. Climb Middle School for future 8th grade classes? If so why or why not?
10. If you were talking to a new student in your school how would you describe the adventure education unit to him/her?

APPENDIX C

BLOCKPLAN

Day 1

Review Challenge by Choice
Introduce Climbing as the final trip, all of the group and leader skills learned in the unit

Activities

Mixer

Student finds a partner (hand shake). New partner (high 5). New partner (low 5). Everytime the teacher yells "hand shake" the students must find their hand shake partner and say "hi PERSONS NAME". You can keep adding more partners and interactions to make recalling names more difficult.

Wiggle Waggle

Students practice wiggle waggle with their hands. Progress to two students and let them practice wiggle waggle with partner. Progress to three, four then entire group in a circle. This can be a timed activity.

Triangle tag

Groups of four. Three students form a triangle holding hands. One apex of the triangle is the "not it". The fourth person not in the tringle is "it". The triangle helps the "not it" stay away from the "it". Keep the games quick and mix up the roles in the groups.

Coin Flip

Two lines facing each other. Teacher flips a coin. Heads and the groups try to race an impulse to the end of their line first. Group that gets the inpluse to the end first must pick up an object to signal they completed the impulse first. Teacher can change the beginning of the line on different trials.

People Roulette

Two circles pass by each other. On the "stop, turn and name the other person. Last to say the name joins the other group.

Day 2
Trust. Focus, review spotting, commands, build trust, identify positive risks to take, challenge self to take a positive risk.

Mirror Image

In pairs one student is the lead the other is the follower. Lead student slowly moves their body (keeping their feet stationary). The follower must mirror the

image produced by the leader. Leaders can make faces and other more difficult movements to make this more challenging.

Off Balance

Two student face each other in a squatting position. Raise hands and position palms near each other maintaining only light contact with the partner's palms. The goal is to try and get their partner off balance.

Bottoms Up

Two students sit on the ground and using their feet as the only point of contact with each other they must try and lift their bottoms off the ground for as long as possible.

2 Person Trust Fall

3 Person Trust Fall

Willow in the Wind

Yurt Circle

Students find a place along a rope tied in a circle. They all lean out at the same time without losing balance. Teacher can challenge the students to do a sitting/standing wave around the circle while maintaining balance. Focus on a smooth motion around the circle.

MAYBE Levitation

Day 3

Begin Group Initiatives, Focus: group work, honing observation skills, defining a common goal for the group to work on.

Play dough Pictionary

Kangaroo Golf

Groups of 5-6. One hula hoop. The student s must set an order to follow. They must throw the hoops over the next person in the order. They continue with this sequence throwing the hoops over a prescribed distance. The debrief can focus on their attention to speed or accuracy. This could lead to a further discussion on when they should focus on speed or accuracy in other things; such as school work or climbing.

Turnstile

Teachers turn the rope. Entire group of students must move one person per turn through the spinning rope. They can not miss a turn or beat of the rope. If they do they must start over. Their overall task goal is to set the world record for number of people through the turning rope. Teacher can extend the activity with a set sequence that

is unknown to the group; for instance 2,1,3,2,1,3 etc… Teacher starts the group over when they have not followed the sequence. Debrief could be about their process in discovering what the sequence

Day 4
Group Initiatives. Focus, Give clear and concise directions to a partner, feedback to others, share ideas

Minefield

In pairs students must navigate one another through the minefield. One student can not see the other must give directions to the partner to get though the field without touching any objects. To make this more challenging have the partner that can see stay on the outside of the field of objects. Debrief can focus on the difficulties of giving directions near and far from the partner.

Spider Web

You know this one. You can use a rope or puzzle to be passed through or if you think they are ready they could pass each other through the web. You can determine how may holes are to be used more than once based on the group readiness to lift and pass people through the web. Debrief can focus on challenging self to take a risk to be lifted. Or how difficult it is to say "I am not ready to be lifted, but this is positive for the group. Also can focus on role of people who are not lift as watchers so no-one touches the web when passing someone through.

Confused Muse

Day 5
Group initiatives. Focus; breaking routines, leader role is sharing ideas, being a good follower

In Plain Sight

Group makes a circle around a bunch of stuff the teach spreads around. Trial #1 teacher places a pen in plain sight. Group turns around and walks through the circle looking for the pen, When each student finds the pen they may return to the circle and remain quiet. Trial #2 same thing as before. Trial #3 teacher hides pen behind their ear or a students ear. Debrief around routines. Was there an established routine in this activity? Lead to routines in their lives. Do they expect certain things in their regular days? Could they be missing things in the regular days if they do not look up?

Maze

Debrief could be on who assumes leader roles in the maze. How did people communicate when they could not see each other?

Day 6
Group Initiatives. Focus: Culmination of all other topics. We will not do all of the initiatives but these are examples to select from.

Touch the can
Plywood race
Group juggle/warp speed
Traffic Jam
All Aboard
Tiangle Muse

Day 7
Belay School Focus, student skills in belaying, risk taking, commands for climbing, support for other taking risks when climbing,

Intro equipment
- Helmets
- Rope
- Carabeiners
- Harnesses
- Friction devices

Practice slip slap slide with weight on the end of a rope over basketball hoops.
- Teachers will tie all knots

Add a person to the end of the line

Day 8
Climb on the climbing wall.

Climbing teams of 5 students. Work independent and with support from teacher when needed.

Figure 1 Sequencing in Adventure Education (Bisson, 1998)

The Relationship Between the Macro-Sequence, the Meso-Sequence and the Micro-Sequence in Adventure Programming

Adventure Programming				
Macro-Sequence (Fixed Planning)	Group Formation →	Group Challenge →	Group Support →	Group Achievement
Meso-Sequence (Mixed Planning)	Acquaintance Activities ↓↑ Deinhibitizer Activities ↓↑ Communication Activities ↓↑ Trust Activities	Group Problem Solving Activities	Individual Low Ropes Course Events ↓↑ Individual High Ropes Course Events	Outdoor Pursuit Experience

Micro-Sequence (Flexible Planning)	Examples of Deinhibitizer Activities	Examples of Group Problem Solving Activities	Examples of Low Ropes Course Events	Examples of Outdoor Pursuits Experience
↕	"Mirror Image"	"Spider's Web"	"Tension Traverse"	"Backpacking Expedition"
↕	"Circle the Circle"	"Nitro Crossing"	"Fidget Ladder"	"Canoe Expedition"
↕	"Speed Rabbit"	"The Meuse"	"Swinging Ladder"	"Biking Expedition"
↕	"The Samurai"	"The Wall"	"Hickory Jump"	"Ski Expedition"

Figure 2. The Outward Bound Model

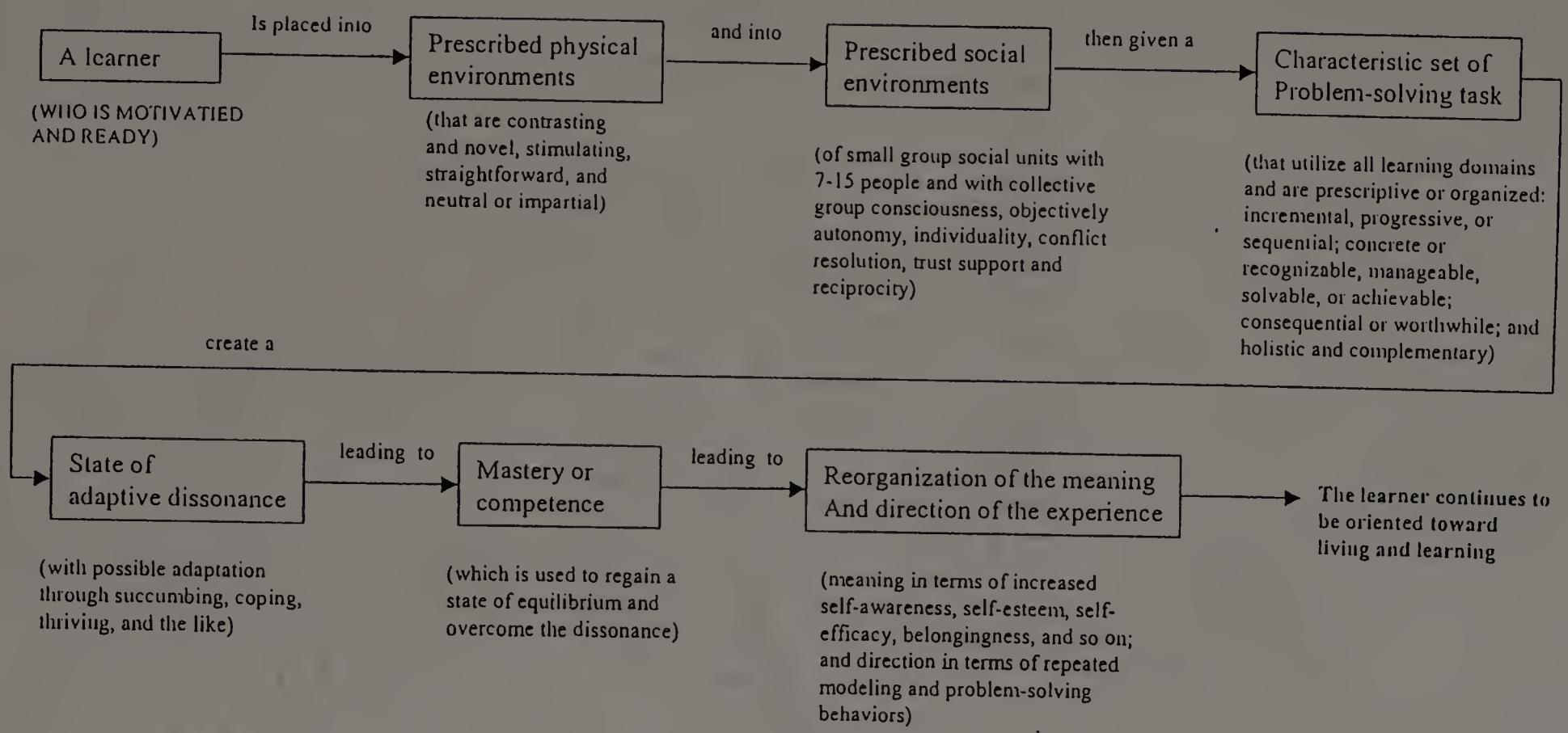


Figure 3. Experiential Learning Cycle

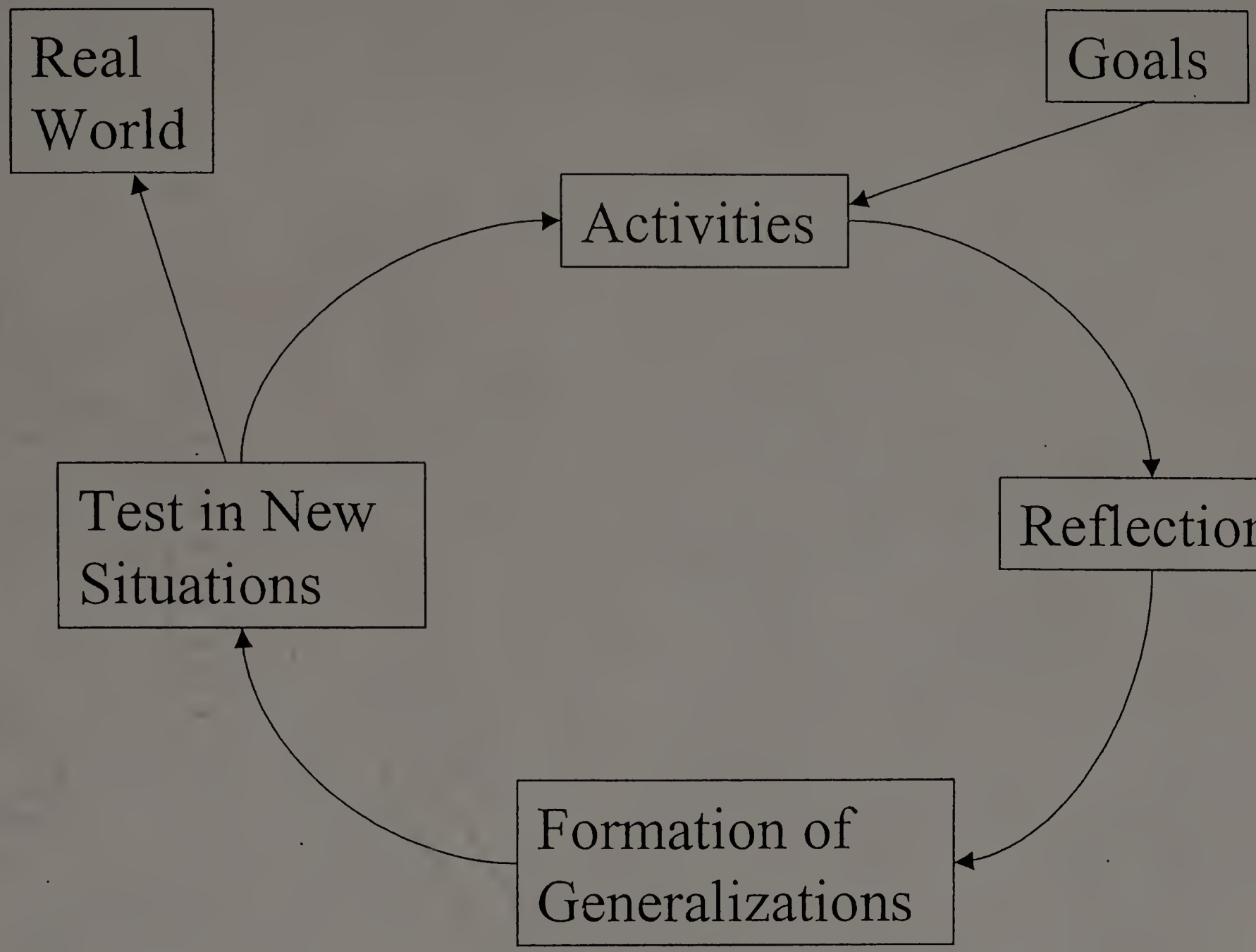


Figure 4. Instructional Alignment and Instructional Models

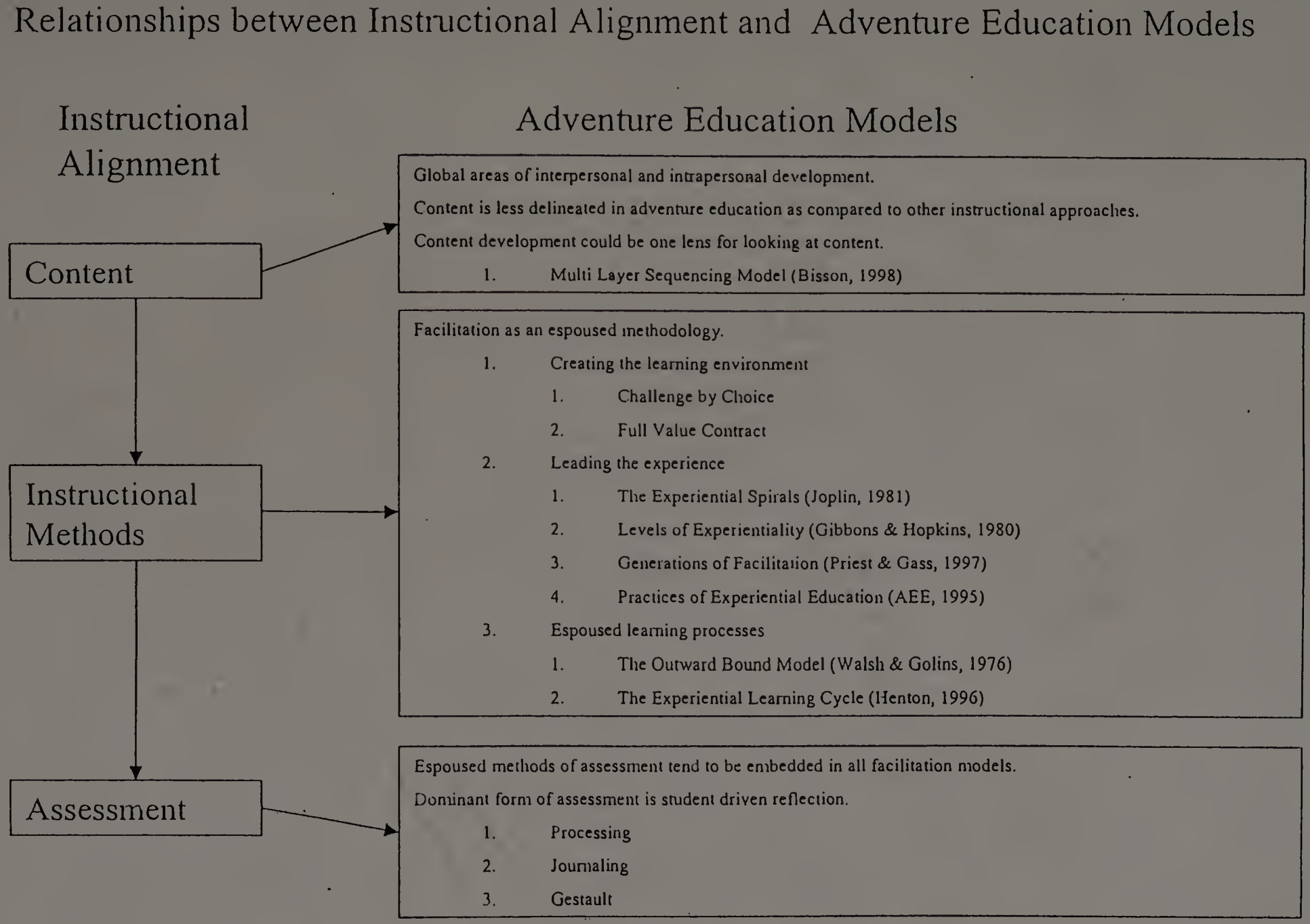


Figure 5. The learning ecology

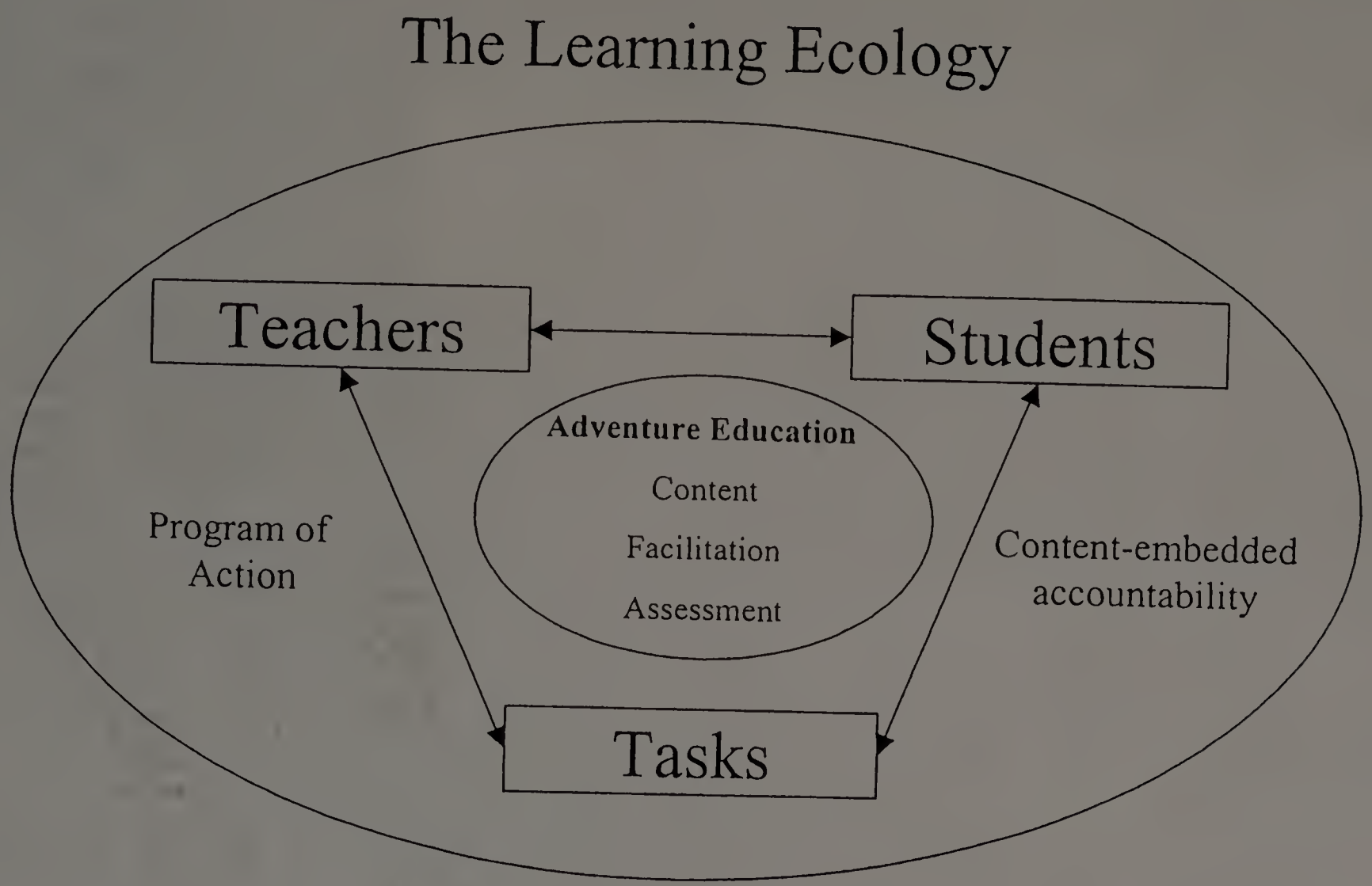
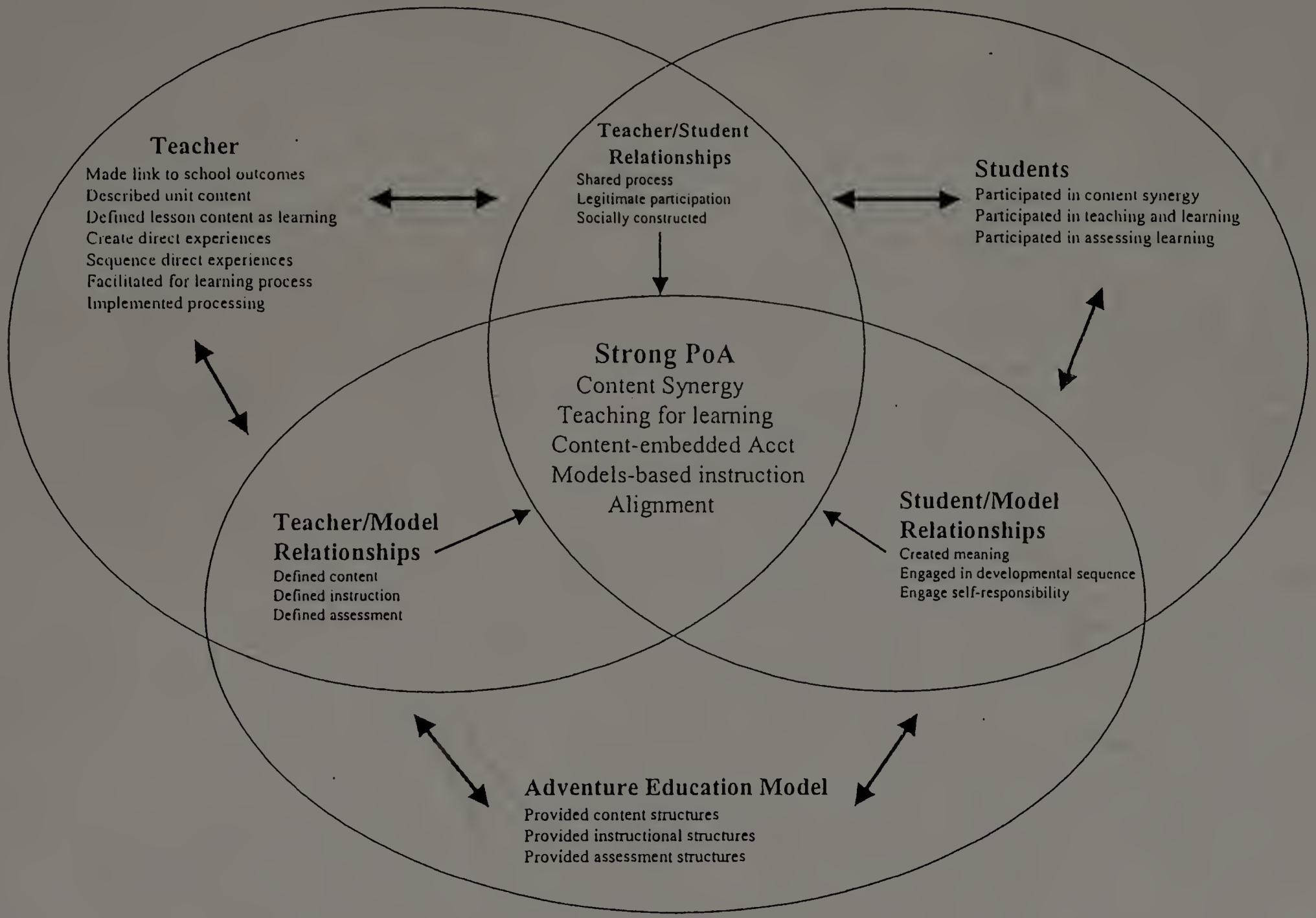


Figure 6. The Adventure Teaching and Learning Ecology



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